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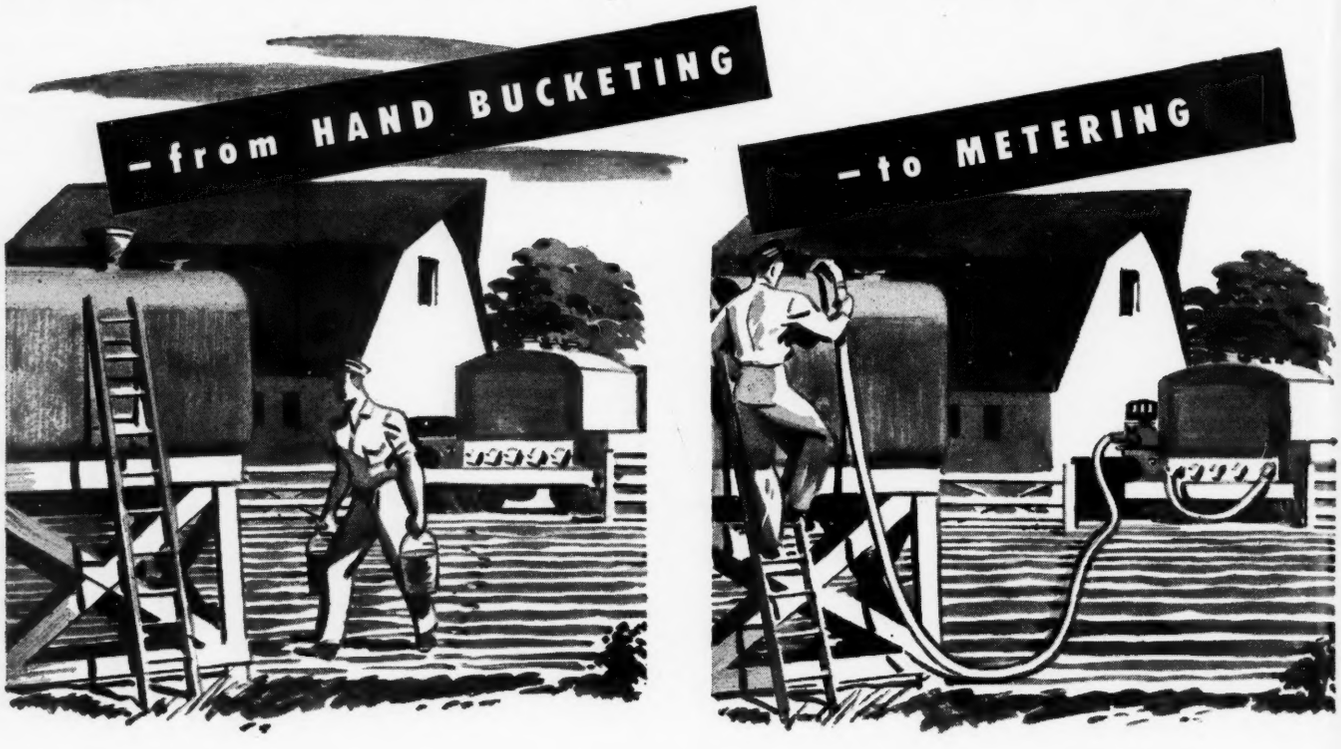

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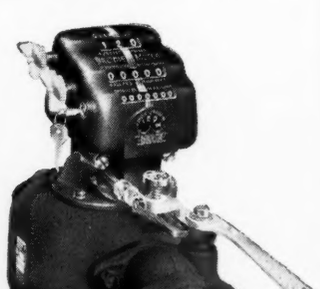

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REPRESENTATIVES AND STOCKS IN ALL PRINCIPAL CITIES

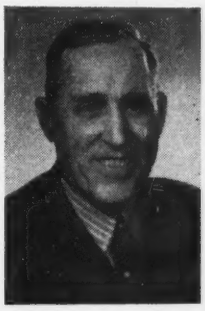
fueloil & oil heat

VOL. 4 NO. 3

JULY 1945

Names in the News

William B. Shirley has been appointed director of heating sales for Airtemp Division, Chrysler Corporation, and will make his headquarters in Dayton, according to a recent announcement by Paul B. Zimmerman, vice president and general sales manager. For 20 years, Mr. Shirley has been connected with the Lennox Furnace Company, Marshalltown, Iowa. Starting as a field man with Lennox, he advanced to district manager, and after serving in various sections of the country, became general sales manager of the company. In 1940 he was chosen to organize the new Columbus manufacturing plant of Lennox.



Frank E. Herr, president of Herco Oil Burner Corp., Lancaster, Pa., died June 26, following an operation. Mr. Herr had been in ill health for the last three years, and had been forced to spend much of his time away from work. While still connected with the Herr Company, hardware wholesalers in Lancaster, Mr. Herr organized the oilburner company to manufacture high pressure domestic, and low pressure industrial burners.

Floyd H. Talmon has been appointed general sales manager of the Toridheet Division of the Cleveland Steel Products Co., Cleveland, according to J. L. O'Brien, general manager of the division. Mr. Talmon has been in sales promotion work for Toridheet since 1942. He will make his headquarters at the Cleveland plant.

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VOLUME 4, NUMBER 3 OF FUELOIL & OIL HEAT. PUBLISHED MONTHLY BY HEATING PUBLISHERS, INC., 232 MADISON AVE., NEW YORK, (16), N. Y., BY CONTRACT WITH FOWLER-BECKER PUBLISHING COMPANY. OWNER OF FUELOIL JOURNAL (VOL. XXIV, NO. 1), AND HEATING JOURNALS, INC., OWNER OF AIRCONDITIONING & OIL HEAT (VOL. XVIII, NO. 7), JULY, '45.

HEATING PUBLISHERS, INC., 232 Madison Ave., New York, 16
LEOD D. BECKER, *Chairman, Board of Directors*

A. E. COBURN, *Editor* — ROBERT GRAY, *Business Manager* — A. G. WINKLER, *Advertising Manager*

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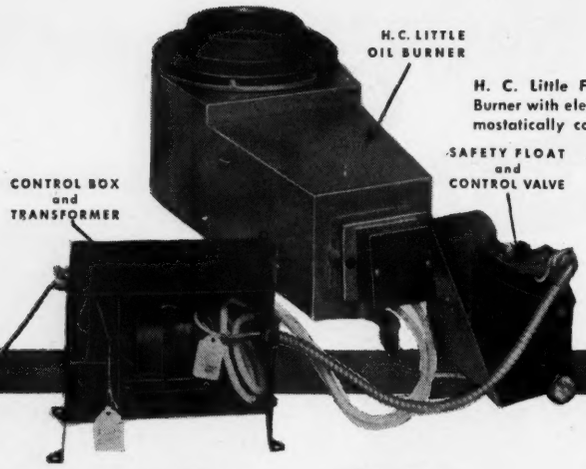
MEMBER CCA

Yearly: $3
Canadian: $4.35
single copy: this issue 35¢


H.C. LITTLE
OIL BURNER
H. C. Little Full Automatic Oil Burner with electric ignition, thermostatically controlled.
SAFETY FLOAT and CONTROL VALVE
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No other oil burner offers you so much volume or profit!

This strong statement has been repeatedly demonstrated by hundreds of H. C. Little dealers, in all parts of the country, over a period of many years. Briefly, there are two reasons why:

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Three out of every four American families live in a small home, of five to six rooms, *or less*. In such homes, a burner operating on two or three quarts of oil an hour will keep every room comfortable.

The H. C. Little Oil Burner is Designed Especially for the Small-Home Market

Because it is a vaporizing burner, it operates at high efficiency on two or three quarts of oil an hour. There are no motors, blowers or nozzles — no moving parts to wear out or give trouble. Moreover, the H. C. Little Oil Burner is the ONLY natural draft vaporizing type oil burner which offers small-home owners all the comfort and convenience of fully automatic operation with *electric ignition* available to them in a complete line.

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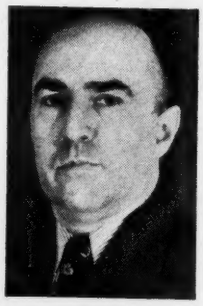
Specialists in Low-Cost Automatic Oil Heat for Small Homes

SAN RAFAEL, CALIFORNIA • BRANCHES IN PRINCIPAL CITIES

E. J. Doucet, general sales manager of Detroit Lubricator Co., Detroit, was appointed vice-president and general sales manager, effective May 1, according to C. H. Hodges, Jr., president. At the same time *K. B. Thorndike*, manager of Detroit Lubricator's Western Regional Office at Chicago, was appointed vice-president, Western Regional Office. Mr. Doucet will remain in Detroit and Mr. Thorndike in Chicago.



H. E. Chapler has been advanced by the Minneapolis-Honeywell Regulator Company to the position of sales manager for oil controls in the Heating Control Division of the Company. He will make his headquarters in New York. Mr. Chapler formerly was a special representative of the company in New York, contacting oilburner manufacturers, and is well known in the industry. He recently has been in Minneapolis as an assistant to A. H. Lockrae, manager of the Heating Controls Division, who has announced Mr. Chapler's new position.

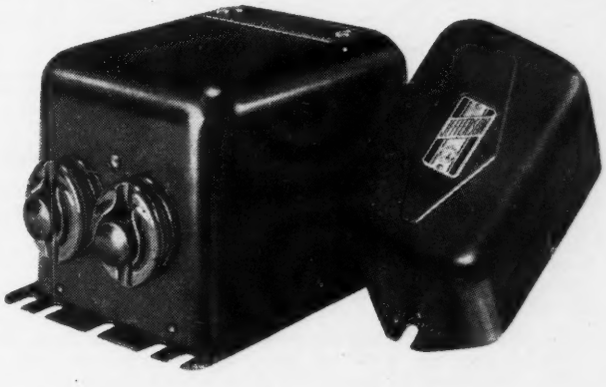
Harold W. Macintosh of L. O. Koven & Bro., Inc., Jersey City, N. J., has been elected president of the Purchasing Agents Association of New York, succeeding Millard W. Merrill of U. S. Metals Refining Co.

Leonard F. Connor has been appointed assistant treasurer of Harvey-Whipple, Inc., Springfield, Mass., according to Ray G. Whipple, treasurer and general manager. Mr. Connor has been with the company 13 years, eight years as purchasing agent and for the last five years as secretary of the company. He is a member of the National Association of Cost Accountants.

AIDING THE WAR TODAY . . . . . .

. . . . SERVING THE PEACE TOMORROW

Tomorrow, when the tools of strife are turned to the ways of peace, Jefferson Transformers will serve with the same fidelity. Improved manufacturing techniques established under the stress of war will be turned to producing still better transformers for your post war needs. Let Jefferson engineers examine your particular requirements now and make suggestions that will save you time later . . . JEFFERSON ELECTRIC COMPANY, Bellwood (Suburb of Chicago), Illinois. *In Canada:* Canadian Jefferson Electric Co. Ltd., 384 Pape Avenue, Toronto, Ont.



In all theatres of war, on the invasion beaches, wherever allied forces march against aggression, Jefferson Electric Transformers establish records of dependable performance. Today—on radio, radar, "walkie-talkies," television communications systems, electronic and control applications,—Jefferson Transformers aid our war effort with a long-life reliability based on engineering skill and Jefferson's basic principle of "quality—with quantity" production.

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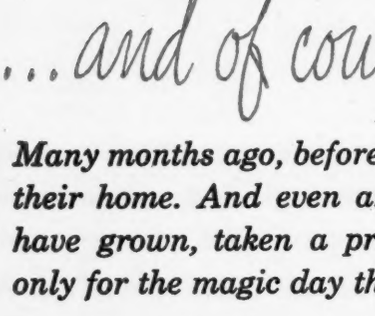

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The people who are dreaming and planning today, will be your prospects soon. To them, the name Gilbarco already means a lot. They have the evidence of 100,000 enthusiastic Gilbarco owners. They know about Gilbarco reliability and fuel economy... and they will respond to the "sell" in the new improved post-war Gilbarco Oil Burner.

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fueloil & oil heat

Fueloil Delivery Problems

I—Some Aspects of Cost of Retail Heating Oil Drops

by
J. F. Winchester*

DELIVERY PROBLEMS in the retail fuel-oil business divide themselves into two main classifications — (1) purchase of equipment and (2) the employment of an operator and his subsequent use of the equipment.

A logical sequence for discussing these problems would be to take them in the above order; however, even though V-E Day has come and gone, there still remains many uncertainties as to the types of automotive equipment that will be available in the near future. The picture is changing so rapidly that a month or two may change many conditions and I am certain you would like to look at the latest picture when we review that phase of the business; therefore, the order of considering this subject is being reversed.

The Office of Defense Transportation has the only reliable figures I am able to present. At the present time there are about 53,000 owners of trucks transporting petroleum products for retail delivery and they operate a total of 98,042 vehicles, of which 7,495 are semi-trailers. These units traveled in this service an average of 15,000 miles a year; whereas in the over-the-road common and contract carrier type of operation, the vehicles traveled an average of 49,148 miles per year, or over three times the mileage covered in the retail delivery project. It is further indicated that 50% of these units are not over 700-gallon capacity. I further found that during the last year, April 1944 to April 1945, approximately 5,134 vehicles were allocated to this group, and the type of chassis they received were capable of carrying the same size tank as employed before the war. 95% of this new chassis allocation made by ODT was for use in PAW District Nos. 1 and 2.

From the above, we can detect that if the average life of a heating oil truck is six to seven years between 85,000 and 90,000 vehicles will be bought by this branch of the business at the earliest possible time if the industry expects to maintain its position from a cost standpoint.

When we consider such statistics, we are apt to be impressed with the industry's importance and overlook the fact that an equal number of drivers will use the equipment. The human equasion is all important. Capable personnel will detect poor, unsatisfactory conditions and will correct or report them. It is necessary to employ intelligent personnel equipped to meet emergencies, and pay them well. Never forget that in the eyes of the customer your driver is your personal representative and through him the customer judges you and your company; therefore, you must train him in your sales methods.

From observations, I conclude that some companies pay a great deal of attention to personnel problems while others tend to neglect them. From all I have been able to observe, the one who pays the most attention to this phase of the business is most likely to profit through low operating costs.

Many of the readers of this paper may not have had an opportunity to study a report entitled, "Driver Selection and Training"—Highlights of a plan for the reduction of accidents through the selection and training of motor vehicle operators. The background of this report is a study made by the operating members of the Society of Automotive Engineers and the Office of Defense Transportation. It is an up-to-date document, having been issued on November 10, 1944.

I do not put forth the idea that every retail delivery operator can afford to train each individual man along the lines laid down in this report; however, in a large operation the majority of the management and training principles set forth should be adopted; while in the small company many suggestions set forth can be adopted. It behooves each merchant interested to study this particular piece of work. Basically, it covers sixteen points which are as follows—

1. *Job Analysis and Job Specification*—requirements of the job.
2. *Application Blank* — personal history and other pertinent data.
3. *Interview* — an opportunity to observe and secure important personal information.
4. *Selected References*—serve as check on qualifications of prospective employee.
5. *Physical Examination* — a check on the physical condition of prospective employee.
6. *General Intelligence Test* — a measure of the ability to think, plan and act.
7. *The Personality Inventory*—a measure of instability, introversion, extroversion and dominance.
8. *Vocational Interest Blank*—a measure of basic vocational interests.
9. *Attitude Scale*—a measure of attitude toward law, pedestrians, other drivers, etc.
10. *Traffic Knowledge Test*—a check on knowledge of sound driving prac-

*Manager, General Automotive Div., Standard Oil Co. of New Jersey. This is the first of a series by Winchester on truck and equipment trends and operating improvement possibilities.

tices; sign and signal meanings; local, state and federal traffic regulations; etc.

11. *State Drivers' License Bureau* — a check on all violations and accidents coming to the attention of the authorities.
12. *City Police of Traffic Bureau*—a check on local violations and accidents.
13. *Fingerprinting*—a check on previous court records.
14. *Laboratory tests for Driver Limitations*—a measure of mental, physical and emotional characteristics of drivers.
15. *Driving Skill Tests*—a measure of the ability of driver to maneuver a car in close quarters.
16. *Driving Test in Traffic*—a measure of the ability of driver to handle a car in traffic.

I have heard it said that the Standard Oil Company of New Jersey, has low operating costs. This may or may not be true; but I can assure you our present-day costs are low as compared with those of ten years ago. The basic reason for the original high costs were lack of volume, lack of knowledge as to the requirements of the business. This type of business was new and its details had to be studied.

	LOW ANNUAL MILES AND HOURS *Less than 10,000 Miles and 2,000 Hours*	HIGH ANNUAL MILES AND HOURS *More than 20,000 Miles and 3,000 Hours*
Driver	50%	60%
Depreciation	25%	13%
License, Insurance & Misc.	5%	3%
Repairs	10%	12%
Fuel and Lubrication	8%	9%
Tires	2%	3%
Total	100%	100%

When the original fueloil installations were made, a major consideration in the construction and installation of fueloil burning equipment in many homes was the ability of the home builder to compete with the installation of coal burning facilities, because naturally first cost in the construction of the burner, the storage facilities for the heating oil, etc., was a major consideration. Time has passed and the general public has come to accept heating oil as a clean handy fuel and are ready to accept it on a different basis than theretofore; but there is still an opportunity for improvement through study and cooperation.

Until the war many contractors and oil companies gave scant consideration to the economies that could be created by full load deliveries or by larger average dumps. The war has changed all this. It behooves us all to consider carefully economies that can be effected through the installation of larger storage facilities which, in turn, will promote two things—(1) the operation of larger motor trucks and (2) security and peace of mind of the home owner.

Many operators today have complained because of past restrictive orders of the OPA and WPB which were issued to stretch the supply and give an equal distribution among our citizens. They have come to a full realization that small deliveries are expensive and yearn for the good old days, even though they may be faced with further shortages (because of the Pacific War) during the 1945-46 season.

Now is the time to take a good look at the cost situation. High delivery costs are not altogether due to constructural defects or government orders. Many may place upon themselves self-imposed handicaps in the selection of unsuitable equipment, either undersize or overloaded chassis, improperly balanced for traction, tires too small, improperly routed equipment, or delivering into large storage facilities small dumps in order to have a competitive advantage. We must avoid these pitfalls if good profits are to be realized.

In some instances, the total cost of the tank truck operation can be as much as 50% of the total marketing cost. The difference between an efficient and inefficient tank truck operation can mean showing a profit instead of a loss.

Before an intelligent approach can be made to the study of tank truck operating

COST PER DELIVERY

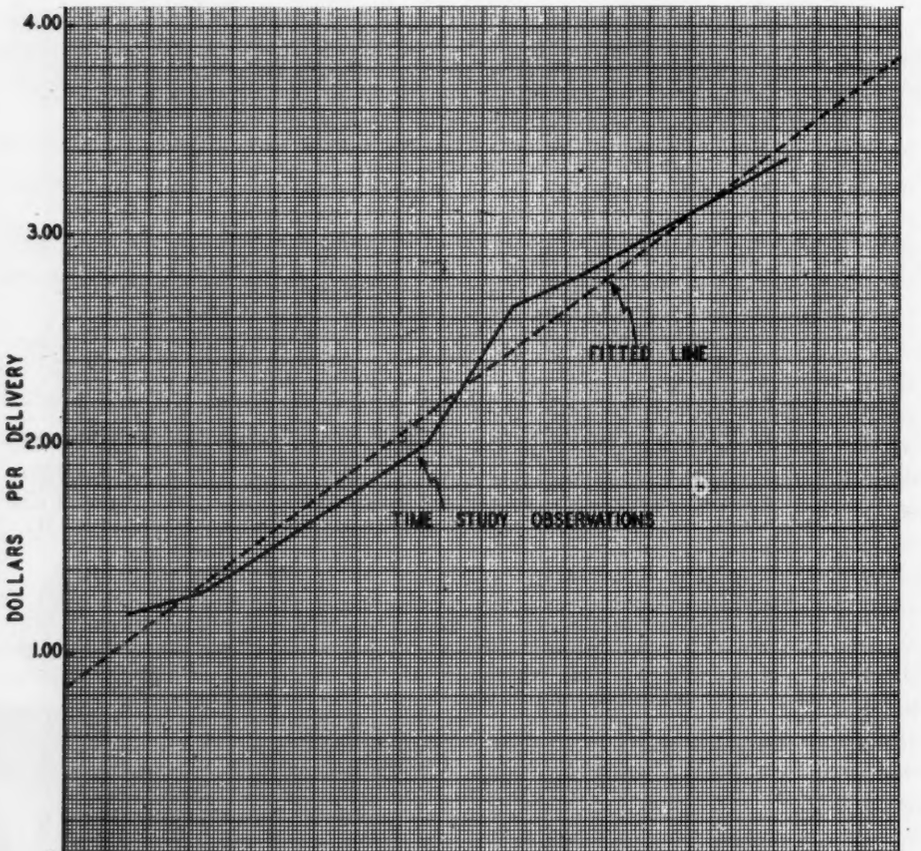
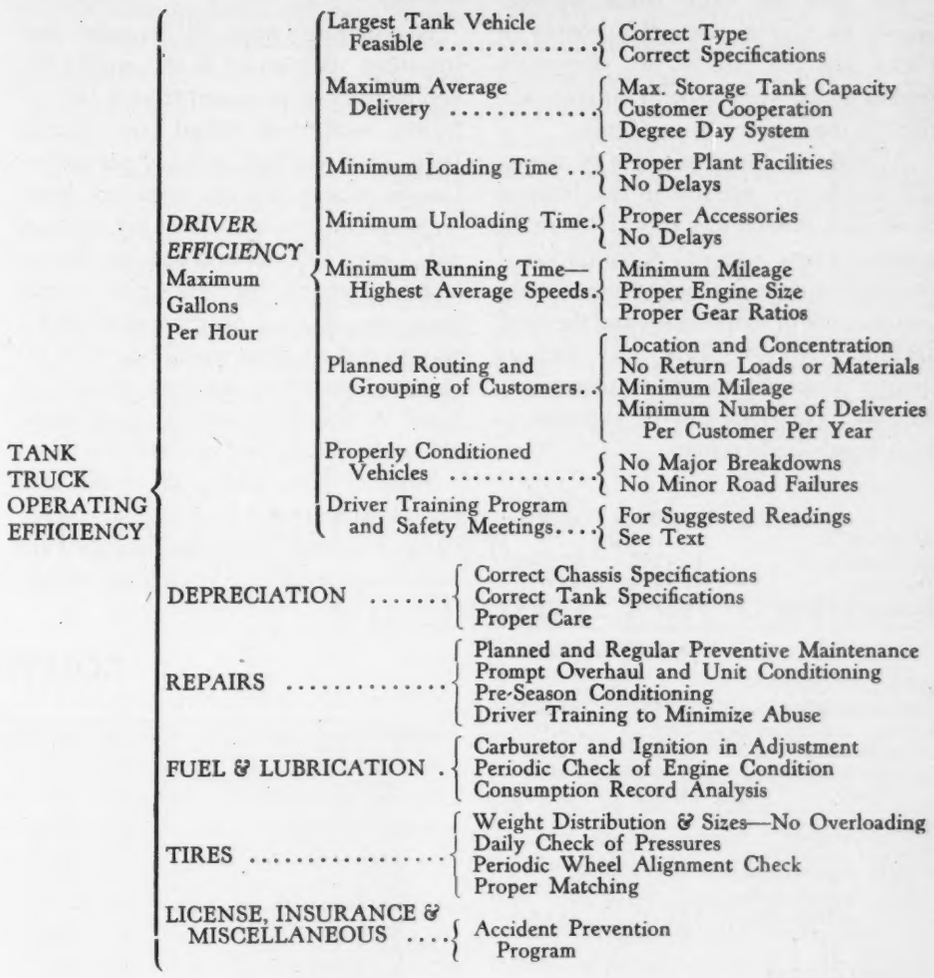


CHART SHOWING FACTORS INFLUENCING THE EFFICIENCY AND COST OF TANK TRUCK OPERATION



osts, particularly from the standpoint of ffecting economies, it is necessary to now the relative importance of the vari-us items which make up the total cost. he table shows a breakdown in percent or two assumed normal operating condi-ions. (See page 38.)

From the table, it is apparent that the ost items in the order of their importance re—drivers' salaries; depreciation; re-airs; fuel and lubrication; license, insur-nce and miscellaneous; and tires. In any ttempt to improve efficiency, it is there-ore logical to concentrate on these vari-us items in this order.

The accompanying chart attempts to how in outline form the more important actors which bear on the efficiency of ach of these items.

Some system of simple records, which makes available sufficient current costs nd performance information, is indis-pensable if results are to be accomplished. Unless costs and performance are known with reasonable accuracy at an early time, t is certainly difficult, or impossible, to know if a good job is being done, or to find weak spots in an operation and to heck the extent of improvements in effi-iency. Such records should show accu-ate current information for each bulk plant and each truck on such controllable tems as—

Gallons Delivered
Tank Truck Miles Run
Tank Truck Hours Worked
Tank Truck Drivers' Wages
Gallons delivered per driver hour
Average delivery size
Tank Truck Repair Cost
Total and Per Mile
Gas and Oil Consumption
Miles per Gallon

If records are maintained for accumu-ating four items: (1) Gallons Delivered (2) Drivers' Wages—(3) Repairs and (4) Miles, it will be possible to work up ny set of statistics desired and best uited for each individual study. It is not ssential to include current information n non-controllable items such as de-reciation, license, insurance, storage, etc. hese items are fixed and not subject to month to month control. For special tudies and surveys these items can always e estimated.

Since the salaries of the motor tank alesman or drivers represent between 0% and 60% of total cost, it is apparent hat utilization of the driver's time must e given the most careful attention. The hart indicates a total of eight (8) sep-arate items, which require special atten-tion to bring results. A method frequent-ly used to gauge or measure efficiency is the "Gallons per Hour Delivered." Al-though such figures must of necessity vary considerably for different routes and sets of conditions, they are very valuable and useful when checking the same vehicle on the same route for successive periods.

Any improvement made in operating efficiency and better use of the driver and truck time immediately shows up in "Gal-lons per Hour Delivered" in almost direct proportion to the improvement made.

The use of largest capacity tank truck feasible for the local delivery require-ments and conditions is of first importance in obtaining low delivery cost per gallon. A hurried decision to purchase units smaller than could have been actually used can result in serious loss for the rea-son that the error must be lived with, usually until the vehicle is worn out. Since the useful life of a tank body can easily be ten years or more, it is apparent that such an error can be expensive.

Drivers' wages in our industry do not generally increase with the capacity of the tank truck, therefore, the larger the vehicle, the lower the unit wage cost. This is doubly important because the vehicle is loaded to the customer and returns empty. The relative lost time in driving is also less with the larger unit. A com-parison of the wage cost per gallon of making three loads per day with a 1500-gallon tank truck versus a 1000-gallon unit indicates that the smaller tank truck could be as much as 50% higher provid-ing the same total number of hours were required.

The average number of gallons de-livered per stop has the next greatest po-tential influence on driver efficiency. An appreciable increase in the average de-livery will have greater effect in increas-ing the gallons delivered per hour and in lowering the unit delivery cost with a

given size tank truck than any other factor.

Just how the tank truck salesman spends his time in the retail delivery of fueloil was the basis of two stop-watch studies which were made in different sections of the country by our force.

A study of these two sets of figures will enable any operator in this business to obtain a general idea of just where the salesman's time is spent. A realization of the large amount of time consumed in the performance of some duties, and the small amount given to others, may indicate specific directions in which attempts to improve operations can be expected to have worth while results.

	% of Total Time	% of Total Time
ACTIVITY		
At Customer's	44.43%	42.34%
Traveling	35.84	38.05
Plant and Other ...	19.73	19.61
Total	100.00%	100.00%
AT CUSTOMER'S		
Delivering Product .	28.95%	31.20%
Invoice and Payment	7.66	8.50
Miscellaneous	7.82	2.64
Total	44.43%	42.34%
TRAVELING		
Between Customers, Bulk Plant to First Customer and Return to Bulk Plant	35.84%	38.05%
PLANT & OTHER TIME		
Loading	4.78%	3.91%
Unloading	0.06	...
With Checker	1.57	0.97
With Dispatcher ...	2.85	3.90
Daily Report	1.66	3.27
Checking Truck for Load & Equipment	0.04	0.22
Waiting to Load ...	1.80	0.05
Telephone Calls to Plant	0.40	1.63
Time lost in breakdown, repairs, etc.	2.40	2.55
Delayed waiting for replacement truck	0.20	0.14
Care of Truck	3.67	2.48
Unknown	0.30	0.49
Total	19.73%	19.61%

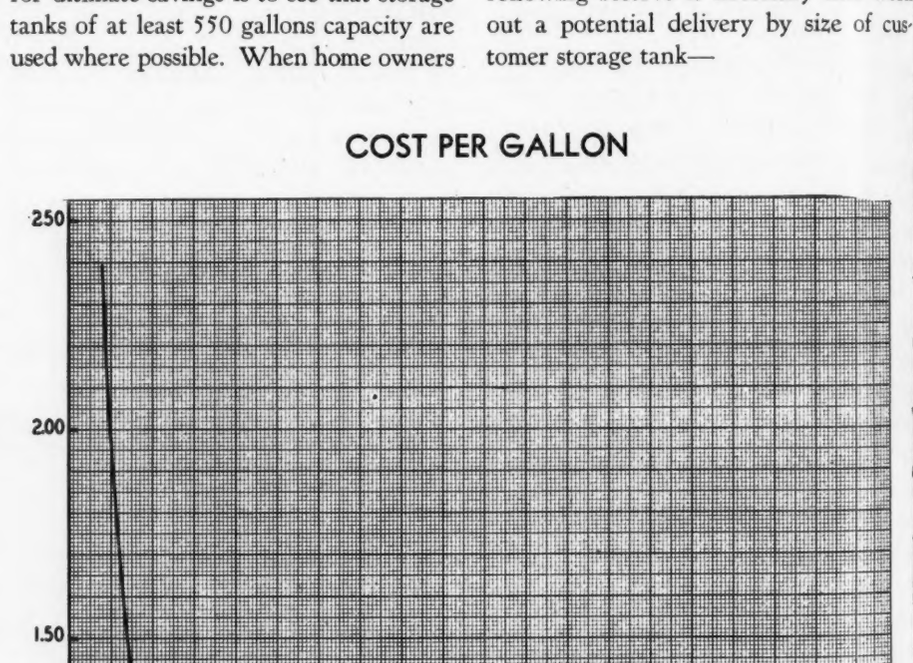
We must find a way to reduce traveling and plant time to a minimum and increase the productive time at customers'. The way to do this is to have a good routing system in which the customer plays a cooperative part through his having a full understanding of your methods of handling his supplies. Lack of cooperation between the customer and the supplier is bound to cause a great many non-delivery stops and a large number of small deliveries into the customer's storage tank. Small deliveries can be made for other reasons, such as a desire to give excessive service and a desire to meet credit conditions, both of which are expensive sales methods.

Non-delivery stops are expensive and irritating. We found in our studies the non-delivery stops varied from 6.34% to 26.8% with their actual cost varying from 0.44¢ to a high of 1.12¢ per gallon. Causes of non-delivery stops are numerous and include—customer not at home, didn't need fuel, refused delivery, wrong address, getting fuel elsewhere, credit poor, etc. A good operator must find a way to correct these conditions if he expects to operate on the most economical basis. A close-knit routing system probably is the best method of correcting them.

Another place where we should look for ultimate savings is to see that storage tanks of at least 550 gallons capacity are used where possible. When home owners live in the extreme north and have large homes, storage tanks of at least 1000 gallons should be employed; while in the South storage tanks of 275-gallon capacity may be sufficient. This is a matter of judgment and becomes a topic for study; however, in the majority of places the storage tanks should be at least 550 gallons in capacity. In one study made about five years ago under normal conditions, the output into three different size storage tanks was as follows—

Tank Size (Gallons)	*Delivery (Gallons)*
275	197
550	340
1000	575

Now let's assume for each size tank the following reserve is necessary and work out a potential delivery by size of customer storage tank—



Tank Size (Gallons)	Reserve (Gallons)	Potential Delivery (Gallons)
275	75	200
550	150	400
1000	200	800

In one of our studies we attempted to find out whether we were measuring up to this potential and the next table will clearly show how we were falling down even though we had large tanks.

Tank Size (Gallons)	Actual Delivery (Gallons)	Potential Delivery (Gallons)
275	197	200
550	340	400
1000	575	800

% Actual is of Potential	% Delivery is of Tank Capacity
98.5	71.6
85.0	61.8
71.8	57.5

Remember, large deliveries are the most important factor that will enable you to lower delivery costs. Every effort should be made to see that the new building programs in your community have storage tanks installed that are at least 550-gallon capacity, for this size tank opens the way to distinct operating economies.

Where homes are built on a mass production basis, the cost of installing large storage is relatively small, as compared with installations after the home is built. A way should be found to take advantage of this situation. No doubt many of the contractors and architects would be only too happy to cooperate in a program that would give the home owner greater comfort and assist us in lowering over all costs. A storage tank of 550 gallons where the tank truck only has to call once or twice in a season is certainly far more convenient, satisfactory and less bothersome than when the truck must call three or four times.

To give a comparison of the cost of installing the different size tanks after homes are built, I present the following table—

Tank Capacity (Gals.)	275	550	1000
Tank Cost	$20.00	$ 40.00	$ 65.00
Tank Installation .	55.00	95.00	128.00
Total	$75.00	$135.00	$193.00

It would cost only $60.00 more to install the 550-gallon tank than the 275-gallon tank.

First costs are always lower on new construction projects, and where they are duplicated many times, then they are lowered in a very material way. The pre-fabricated home will produce results along the lines of low cost in home building and so it can be through careful planning with this particular item. Costs, particularly the installation item, can be materially affected if planned in advance.

This matter of larger storage capacity in the home for fueloil is so important to the dealer and the oil industry it seems advisable to present some charts that plot costs in two ways. The accompanying charts convey a picture of the advantages that will accrue to the industry if larger storage facilities in the new homes to be constructed become a reality.

These cost figures picture an operation in an area where the majority of storage tanks are 275 gallons capacity. Some dealers may pay their operators a lower wage scale or have other cost factors that may vary with those tabulated; however, here is an opportunity to visualize from reliable figures a picture which will enable you to evaluate the economies possible in such a program.

Larger home storage is a specialized problem that needs the united efforts of all associated with an essential industry. Various plans could be advanced to make it a reality. Study the possible savings and you may think it worth while.

State Legislatures Ease Transport Limitations

FUELOIL DISTRIBUTORS, as one of the groups heavily dependent upon highway transportation, will be among the beneficiaries of an accelerating trend toward the removal of state regulatory barriers hampering motor carriers.

Restrictions on truck sizes and weights, which have been, and in a number of instances still remain, the major obstacle to maximum use of highway transportation in both intrastate and interstate commerce, have been liberalized by the 1945 legislatures of a dozen states—Arizona, Colorado, Iowa, North Carolina, North Dakota, Oregon, Pennsylvania, Minnesota, South Carolina, Tennessee, Texas and Wyoming. Such a bill was passed but vetoed in Indiana, with similar measures still pending in some legislatures.

Much of this action was a translation into permanent law of size and weight liberalizations which had been effected on an emergency basis for the duration of the war in order that trucks might fully assume their vitally important role in the movement of war materials. With the trucking industry having demonstrated its increased usefulness when not throttled by unreasonable and varying restrictions, and with modern highways having proved their ability to withstand heavier loads, an increasing number of states are extending into the postwar period the benefits of maximum use of the highways. Preparations for a vast federal-state highway construction program also are stimulating the trend toward legislation which will permit full highway utility.

Tearing down what had been regarded for years as one of the most formidable Eastern trade barriers, Pennsylvania's legislature enacted into permanent law its war emergency legislation under which permissible gross weight for tractor-semitrailer combinations is 45,000 pounds and maximum axle load is 20,000 pounds. Increases for other types of trucks also are provided, alleviating the prewar situation which made it necessary for large trucks from neighboring states, with more liberal size and weight restrictions, to either steer clear of Pennsylvania or shift cargoes at the border.

Earlier in the year Tennessee liberalized its truck size and weight laws on a permanent basis. New laws there increase permissible maximum gross weight from 30,000 to 42,000 pounds; lifting the maximum height from 12 to 12½ feet and increasing permissible maximum length of a combination rig from 35 to 45 feet and of a single vehicle from 27 to 35 feet. Tennessee's action was hailed as particularly significant for its possible effect on next year's regular legislative sessions in Mississippi, with a peacetime limit of 30,000 pounds, and Kentucky, which heads the list of barrier states with a peacetime weight limit of only 18,000 pounds.

North Carolina raised its maximum length limit from 45 to 48 feet and maxi-

(Continued on page 84)

Pressure-Vacuum Problems

Gun Burner Breakdowns are Ended by Simple Remedies

by
J. W. Schulz

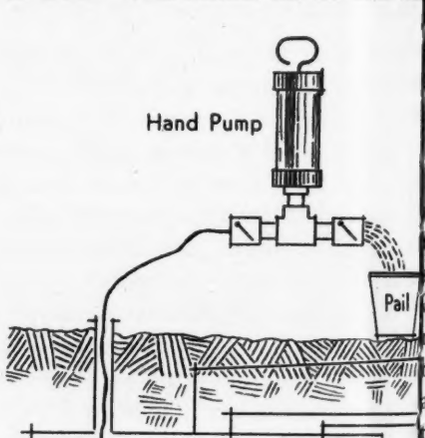
HERE are five case histories of trouble with pressure burners. The service men who asked for help in handling these troubles at first said each was caused by a defective oil pump or fuel unit. Actually, some were and some were not. The wartime complications of obtaining certain special parts were blamed for the difficulty in solving several of these troubles. Of the remainder, some follow the patterns of service calls which may be received at any time, wartime or peace time, and some are related to the urgent need to replace old, wornout oilburners and burner parts as early as dealers can get precisely the new equipment which they need to install to modernize the installations.

(1) An increase in the radiation load carried by this large pressure burner made necessary a shift from 9 gph to 12 gph. Two days later, answering a no-heat call and finding the burner turned off by the stack safety control, the service man observed that with the burner motor running properly the flame varied considerably in size. Every few minutes it dropped to about half its proper size for a few seconds, then went back to normal size. To settle a question in his mind, he switched back to a nozzle for 9 gph. This eliminated the flame fading. After an hour of trying different ways to end the trouble, he told the owner of the building to pray for warm weather for a few days because the undersize flame given by the small nozzle would have to be used for safety until the troubles of the 12 gph flame could be explained.

Some days later the real diagnosis of the trouble started with applying a pressure gauge and trying 12 gph. This showed that every time the flame faded, the atomizing pressure dropped from 135 to 85 lbs. Then it built up again. The service man was now instructed to open the firing door of the boiler and carefully, keeping an eye on the pressure gauge and a hand on the valve, close down on the hand valve in the return line of the burner until the pressure gauge showed 175 lbs. He found he could do this easily and that as a result the burner ran nicely.

The trouble was instantly diagnosed as an oversize bleed slot in the pin of the pressure regulator valve (see Diag. 1). That is, the slot was oversize as far as 12 gph firing rate was concerned. The pressure regulator pin was removed. The slot was half filled with solder and to play safe the valve pin was ground in for a minute or two to fit the seat of the valve. A trial at firing a nozzle which gave 15 gph proved that with it there was no flame fading and established the safety of firing 12 gph. The burner was tuned for 12 gph and has run nicely since.

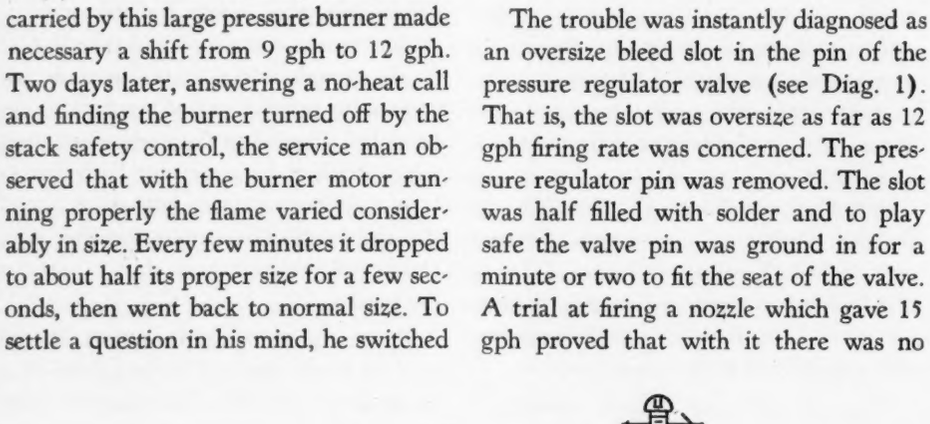
(2) There's nothing like having a well-made "oil thief" for finding out if burner trouble really is being caused by sludge and water recently delivered or accumulated in the storage tank over years. To pump out water and sludge, there's no real substitute for a properly equipped oil truck. With neither the oil thief nor



Diag. 2 - Sludge Trouble

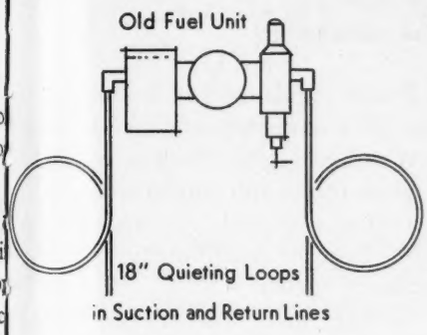
the truck fitted for pump-outs at his disposal, this service man just refused to conclude that sludge and water caused the many breakdowns of this domestic burner connected to a 550-gallon buried tank. When finally he asked for help, a hand pump rig of the type shown in Diag. was quickly put to work. The pump itself is a commonly available type. It can be made by any service man. The cylinder of the one shown is of about 2" inside diameter and 12" long. The plunger has two cupped washers, one facing upward to give suction and one downwards to give pressure. A pipe nipple connects the pump to a 1/4" or 3/8" tee. On each side of the tee is a ball or swing check valve.

An old piece of 5/16" OD copper tubing was used on this installation to reach down to the bottom of the oil tank and the



Diag. 1 - Oversize Bleed Slot

through the opening used for sticking the tank. 3/8" tubing would do as well, and even 1/4" OD copper tubing could be used



Diag. 3 - Pump Whine

in a pinch. On this installation, the pump served, first, to bring out that there was six inches of water and sludge in the tank; second, it served to bring these trouble-makers out of the tank.

(3) There were fussier tenants in this four-family house after the owner modernized it and doubled the rents, and though the earlier occupants had never spoken of oil burner noise, the new tenant closest to the oil burner did more than mention it. He declared that when the burner ran at night it made a racket like a noontime whistle. After the owner had turned down one service company's offer to revamp the burner for $45 and install a modern, quiet oil pump on it, another company's service man did some checking, diagnosed the trouble simply as pump hum, because closing down somewhat on the suction line valve reduced the whine, and wound up with "quieting loops" as the very effective remedy. These consist simply of 18" lengths of 1/4" OD copper tubing, neatly coiled to about 3" diameter, and installed in the suction and return lines as the diagram shows. Previously, 3/8" oil lines had run right to the burner.

(4) Even though it seemed that considerable oil had been burned on this installation since the special suction line filter had been installed, the service man trying to get the burner out of pumping trouble would not admit that the filter might need a new element. The element was of the type which is thrown away when dirty, and which can't be examined for clogging and then used again. To check the filter's ability to pass oil easily, a tee was installed on each side of it, a vacuum gauge was screwed into each tee, and the burner was started. The gauge closer to the pump showed a 23" vacuum while the other gauge showed 5" (outside tank installation). For remedy, a new filter element was installed, bringing two readings of 5" from the vacuum gauges.

(5) "I'm sure the oil pump on this old burner has become weak and is causing the trouble calls about six times a month," said the burner dealer who threw the spotlight on this trouble job, "but the pinch-penny owner says he knows the pump is good as new. Is there any way to prove the pump is good or bad?"

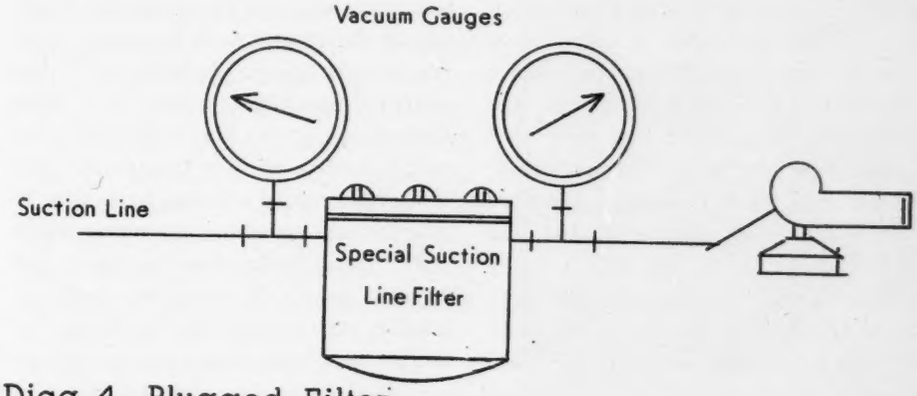
Temporarily and just for the test, the one-pipe installation was turned into a two-pipe job as Diag. 5 indicates. The suction and return lines are easily-installed 1/4" OD copper tubing that winds up in a five-gallon can of fueloil. In the suction line is a shut-off valve and a vacuum gauge. Closing the suction line valve tight with the burner firing normally produced a maximum reading of 12 1/2" on the vacuum gauge, proving that the pump was very feeble. The dealer sold the owner a new pump by guaranteeing that during an identical test it would pull at least a 20" vacuum. Actually the new pump produced a reading of 26 1/2".

"The reason I had to go to all that trouble to sell a $32 new pump job," the dealer explained later, "is that the owner of that burner works for an organization which will buy about $8,000 worth of heating and air conditioning equipment within a year or so. When I first tried to get his permission to install the pump at $32, he suspected I was trying to hook him properly. To prove I wasn't, I just had to show him how badly the pump was needed."

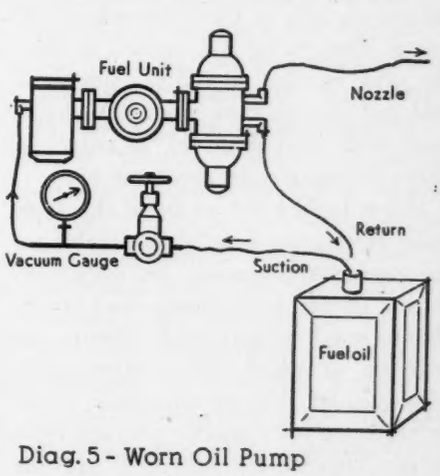
(6) Diag. 6 shows the gauge testing rig built of scrap-pile material and used by an organization that wants its service men to be able to depend on the vacuum and pressure gauges they use daily in hunting for trouble and tuning burners closely.

The pump, from an old belt-drive burner, is in good condition and can produce a 25" vacuum or a 200 lb. pressure. It is connected to an oil drum by the suction and return lines shown. The suction line has a strainer and shut-off valve (A). In the return line is an old but good piston type combination pressure regulating and shut-off valve (PR & SOV). The nozzle line goes to a spray tank for testing nozzles, and is fitted with a globe valve for shut-off when nozzles are not being tested. (See diagram on next page.)

To start out, valve A is left open, and valves B, C, D, and E are closed. The pressure gauge on the output side of the pump can be made to read from 25 to 200 lbs. pressure by adjusting the PR & SOV.

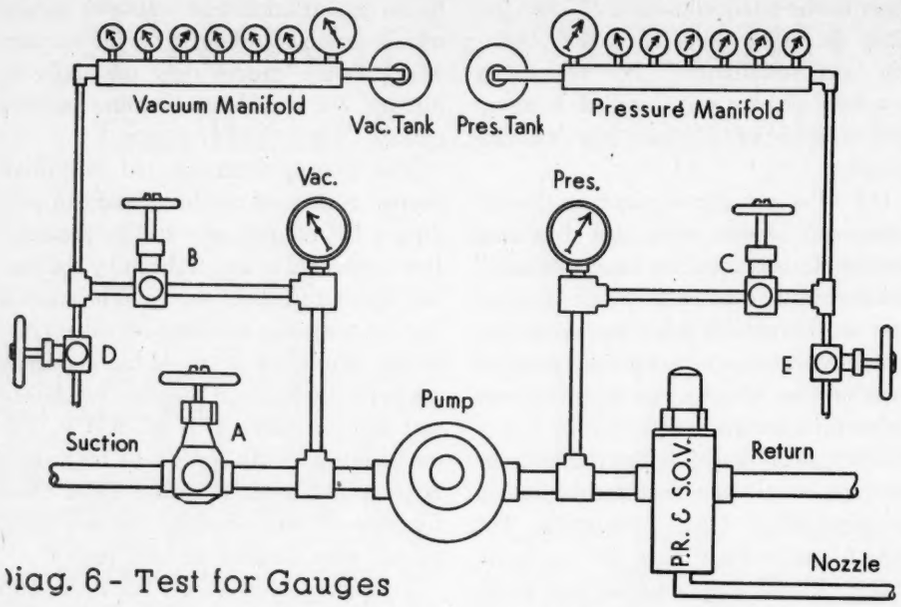


Diag. 4 - Plugged Filter



Diag. 5 - Worn Oil Pump

The pressure gauges to be tested are screwed into the pressure manifold and then, with say 100 lbs. pressure on the output side of the pump, valve C is opened. This puts the pressure on all the



Diag. 6 - Test for Gauges

gauges in the manifold and permits comparing the readings. The pressure tank is made simply of capped 3" extra heavy pipe. It serves as an air chamber to give close control over the manifold pressure when valve C is closed and valve E is opened slightly to lower the gauge readings. Gauges used in servicing pressure burners may be checked at 50, 100, and 150 lbs. pressure.

With valve C closed and suitable pressure in the tank as indicated at the manifold, a line run from valve E may be used to apply a pressure test to controls, oil valves, etc. which need checking for action or leaks at certain pressure.

To use the vacuum side of the rig, first valve A is closed sufficiently, with the pump running of course, to obtain the desired vacuum at the input side of the pump. Then valve B is opened to place the same vacuum on the vacuum manifold and vacuum tank. Valve D may be used, with valve B closed, to reduce or "kill" the vacuum on the manifold.

If you build a test set-up of this type, make sure to use only tanks suitable for the vacuum and pressure. Do not use ordinary storage tanks which may not be able to stand the maximum pressure you will use, or which will collapse under high vacuum. The pressure tank should be protected by a suitable pressure relief valve. The valve's operating pressure must, of course, be higher than any pressure you intend testing at, but must be safe for the storage vessel. The tanks may be some distance from the manifold.

Expensive, carefully-handled vacuum and pressure gauges may be used occasionally to check the gauges kept in the testing rig and used for the routine checking of the gauges used by service men. For vacuum gauges, however, a U-tube mercury manometer is best, as it gives absolute accuracy. For maximum accuracy in testing pressure gauges, the master gauge may be checked from time to time through use of the instrument which high pressure boiler inspectors use to test pressure gauges. If you know a boiler inspector, you may be able to arrange for him to check your master pressure gauges periodically on an absolute accuracy basis.

To be good at handling the type of work that must be done well for success at servicing all makes of burners, a service man needs skill, experience, and ingenuity. Small service companies, that do not keep in stock hundreds of oilburner parts, find this to be especially true. Operating at a profit, and keeping old accounts and gaining new ones, often depend on giving heat speedily although the burner involved is an odd model for which parts can not be obtained without considerable delay. Breakdowns do come on zero days, in the middle of winter nights, and on weekends; when they do, ingenuity must often get a burner going without the help of new parts, if the burner is to run at all that day. Almost every service man can testify from experience that ingenuity is needed also when it's important to put a burner in good, dependable running order, but the owner simply will not pay for the rebuild job and new parts the service man would provide if it were his burner.

Ration Amendments

TWO MORE AMENDMENTS to Ration Order No. 11 have become effective since the last issue:

Amendment 59

I

Present regulations. In Zones A-2, B-2 and C-2 a consumer using residual oil for heat or hot water or both, is entitled to a ration for his full normal requirements instead of two-thirds of normal requirements as in the case of the users of other grades of fuel oil.

Change and reasons for change. Sharply reduced supplies make it necessary again to curtail the issuance of rations for residual oil. Rations for users of residual oil will be issued on the basis of two-thirds of normal requirements or of base period consumption. Such users will again be permitted to apply for additional rations if they meet the tests of hardship as now set forth in the regulations.

II

Present regulations. A fuel oil dealer without registered storage capacity, for whose account fuel oil is delivered to his customer by another dealer or primary supplier, may collect the evidences for the transfer only as the agent of the deliverer and must surrender the evidences to the deliverer.

Change and reason for change. This change will clarify the regulations so as to permit the dealer to exchange his customer's check for a Board check. If he does so he must endorse the Board check and surrender it to the deliverer.

Amendment 60

Present regulations. Revised Ration Order 11 permits except in the States of Oregon and Washington, the use of Slow Curing Road Oil (SC 1, 2, 3, 4 and 5) for surfacing or maintaining roads, or for producing products for paving purposes or dust palliatives.

Change and reason for change. This change is made at the request of Petroleum Administration for War which has prohibited the transfer or use of road oil as a paving material or dust palliative on roads. It has also prohibited the manufacture of road oil. In order to conform Revised Ration Order 11 to Petroleum Directives 72 and 80 it is necessary to revoke the permission to use Slow Curing Road Oil for these purposes.

Those "Outside" Controls

What they Do and How they Are Applied

by
H. T. Kucera

THE 1944 "Manual for Winterizing the Home," issued by the War Production Board, Conservation Division, contains the following paragraph:

> " . . . *Outdoor thermostats, zoned controlled systems, etc., are available for the very large residences, hotels, apartment and other public or commercial buildings. They are useful on installations where it is difficult to properly locate an inside thermostat. . . . Savings up to 25%, or 30%, are possible with these types of controls.*"

Just what is an "Outdoor Thermostat" that is credited with fuel savings up to 25%, or 30%? Where, when and how is it used? These questions are and should be uppermost in the minds of every heating man. In simple language, an "Outdoor Thermostat" is an automatic heat control that reacts to changes in outside temperature and automatically changes the rate of heat flow accordingly.

To produce satisfactory heating in any building, each room must have enough radiation installed to take care of the heat loss from that room under extreme conditions. The piping or duct system, too, must be designed to distribute the heat which is introduced into the building to all radiators at a rate proportioned to the size of the radiators. These conditions for satisfactory heating are true regardless of what form of control is used.

Room Thermostat Control

Consider the results where an inside type of control, placed in a selected room, is used for the entire building. If the radiation installed in the control room is a little more or a little less than it should be, the remainder of the building will consequently be underheated or overheated.

If the heating or heat loss of the control room is altered in any way by the opening of a window or door, shutting off a radiator, restricting the heat output of a radiator by covering it with a newspaper or pushing a chair against it, by failure of the air valve or trap—the heating of the entire building is affected. Further, when using a room type of control, just as soon as the thermostat in the control room is satisfied, the flow of heat stops, regardless of whether enough heat has entered the building.

The larger the building the more these difficulties of control from a room thermostat are amplified. For this reason a great many installations have been made in such larger buildings with no provision for controlling the heat input other than by hand operation. In such cases, the engineer or janitor usually attempts to throttle the rate of heat flow in mild weather. Almost invariably if there is sufficient flow of heat to supply the far end of the system adequately, the remainder of the building is greatly overheated. If control is attempted by turning the heating system on and off for intervals of time, it is usually impractical to do this frequently enough to avoid open windows because of long "on" periods followed by complaints because of long "off" periods.

Everyone recognizes these difficulties. No one questions the fact that but for these difficulties of control, every multiple building would be "automatically" heated today. They could not afford to be without automatic heating. Today's answer to that problem is the "Outside Theromostat."

Heat Loss Changed by Weather

When inside temperature is kept constant—say at 70° F—the colder it gets outdoors the faster heat is lost from the building. In order to keep the building at 70° F, the heat put into the building must be balanced with the heat lost from the building. As the amount of heat put into the building varies directly with the outside temperature, what is more logical than to use the outside temperature as the measuring stick to control the heat flow to the building?

Controlling entirely from the outside temperature, the "Outside" type control is not affected by physical conditions in any one room or one radiator nor can any one occupant affect the heating of the entire building. Operating automatically,

Mr. Kucera

any of the successful "Outside" type of controls can be adjusted at the time of installation to introduce heat fast and frequently enough to maintain a comfortable condition in the building regardless of the fluctuation of outside temperatures.

An "Outside"type control is not a sure cure for a sick heating plant. In a building in which the radiation has not been properly proportioned to the heat loss of the individual rooms, those rooms having an overabundance of radiation will always be warmer than those rooms short on radiation. In a building in which the piping or the heating system in general is such as to produce an unbalanced heating condition in the building, the heating will be unbalanced regardless of the type of control used.

However, an "Outside" control *is a sure cure* for the uneven heating produced in buildings controlled by a room

thermostat; for the unbalanced heating condition produced by "throttling" or reducing the circulating pressure of a manually controlled heating plant; and for the uneven heating produced by the haphazard, spasmodic starting and stopping of heating practiced by so many operators.

Development of the Outside Control

Lacking adequate automatic controls, the good engineer of the past learned to watch the outside weather conditions and to operate his heating systems accordingly. The smart operator learned that he could shut down his heating system once in a while under most normal weather conditions, and he therefore made a chart that he would try to follow. This chart indicated the length of time he could shut down his system under different weather conditions and how long he had to operate again to pick up building temperatures. He also learned that he could schedule the time at which it was necessary to start up his heating system in the morning (depending on how cold it was outdoors) and the time he could shut off for the night.

Types of Outside Controls

The transition from the indicating thermometer to the automatic "Outside" control was a simple one. Instead of the outdoor thermometer bulb moving a pen arm over the face of an indicator dial, it was changed to move an electrical contact arm over a switching mechanism. The switching mechanism would make contact for a while and shut off for a while. As the "contact arm" was moved in one direction, the periods of contact would get longer; in the opposite direction the periods would get shorter.

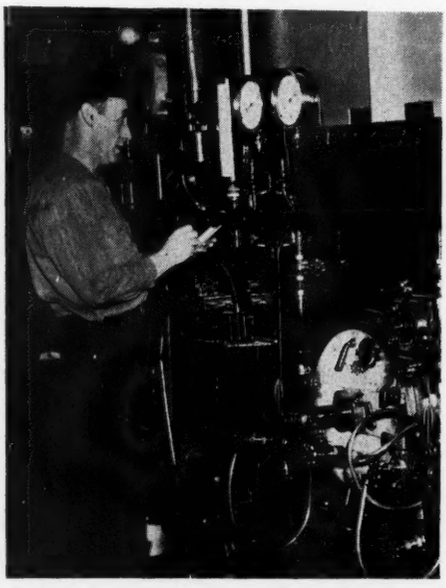
Designed to operate on a twenty-four hour schedule, this mechanism also made contact earlier in the morning and maintained contact later at night if the weather turned colder. The proportion of heating time as well as the length of the heating periods were made adjustable to suit the characteristics of the building. This control operates the heating system just as any good engineer would do if he had a schedule for his building.

Another form of automatic "Outside" control locates a thermostat outdoors within a special housing and utilizes the principle of operating the heating system as it is necessary to operate a heating element in the housing to satisfy the Outdoor Thermostat. In some instances an auxiliary control is utilized to assure complete heat distribution within the system before the measured heating commences.

Several modifications of Outdoor Thermostats operate to vary radiator temperatures in accordance with changes of outside temperature. In some cases an auxiliary thermostat is attached to a radiator or other part of the heating system to operate in conjunction with the Outside Thermostat. Another method is to introduce steam continuously into the heating system at a rate varying with outside temperatures, either by accurately controlling the pressure or by producing a sub-atmospheric pressure condition in the system which varies as the weather demands change. Where continuous steam flow is practiced, means are provided for accurately controlling steam distribution.

Wherever a building is heated with any conventional type of heating systems —be it steam, hot water or warm air— some form of outside thermostatic control can be applied. Outside controls are today controlling the heating of buildings ranging in size from the six-room bungalow to the many-storied skyscraper. Whether the thermostats function to control the heating of a single building or a group of buildings, each can be accurately regulated without interference by the building occupants.

Outside thermostats can be installed on any existing heating system as well as on new constructions. Such controls can be installed in conjunction with existing gas, oil or coal burners or may be installed at the time of equipment installation.



The Good Engineer *learned to operate his plant according to outside weather conditions.*

Applying Outside Thermostats to control the boiler plant will not interfere with heating plant operation and therefore may be made throughout the heating season without shutting down the heating system. Where it becomes necessary to install motor valves or otherwise cut into piping, it may be necessary to make installation on a mild day.

In buildings where there is no need for steam other than for space heating, the Outside Thermostat may be connected directly to the burner. Where steam is supplied for process work or is needed for producing domestic hot water, the Outside Thermostat may be connected to an automatic shut-off valve in the steam line.

Where a building or group of buildings is sufficiently large to warrant "zoning" several Outside Thermostats may each control the operation of an automatic shutoff valve to a "zone."

Hot Water Heating Systems

In hot water heating systems using a circulating pump, the Outdoor Thermostat may be connected directly to the pump to control circulation of hot water. Control in this manner is made possible by use of "Outside" type controls which anticipate the change in indoor temperature and stop flow before overheating is produced—and start it again before stratification occurs. In installations where it is not necessary to maintain high boiler water temperature the thermostat may control both the firing unit and the circulating pump.

Where it is desired to maintain continuous circulation of water, an automatic shut-off valve in a by-pass arrangement may be operated directly to control the volume of heated water circulated.

In gravity circulation hot water heating systems, the Outside Thermostat can control the burner.

During the past ten years Outside Thermostats have proved their value as fuel savers and as building temperature regulators. The statement of the War Production Board quoted above is a true indication of this. Further, to qualify under the standard FHA requirements, all multiple housing projects, housing eight or more families, must include outside temperature responsive controls.

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Industry Meetings

Activities of local and national industry associations will be reported monthly in this department. Secretaries are invited to send reports of their group's activities, to reach the editor by the 20th.

Atlantic Conference—Harvard Research Program Starts

HIGH SPOT in the Fifth Annual Meeting of the Atlantic Coast Oil Conference, held at New York June 14, was the announcement that the research project to be planned and executed by Harvard University's School of Business is now ready to start. All funds are in hand, with a considerable share of the total cost being borne by ten major oil companies. The study is to embrace various angles of fuel-oil handling and marketing and will necessarily include some useful work on oilheating practices. The major oil companies, who have made their contributions direct to Harvard, are Atlantic, Cities Service, Gulf, Pan American, Shell, Sinclair, Socony-Vacuum, Standard of Jersey, Texas and Tide Water.

The principal address to the 175 members and guests attending the dinner meeting was made by Prof. Richard S. Meriam of Harvard, who will supervise the new study. He discussed at some length research as a business tool. Warren Platt, editor of *National Petroleum News* explained some of his impressions from his recent European trip to study military petroleum activities. Others, who spoke briefly, were Charles L. Harding, PAW's District I Director, Walter L. Faust, Socony vice-president, John W. Scott, president of Buckley & Scott, Watertown, Mass., and one of the three founders of the Conference, E. M. Callis, president of Petrol Corp., Philadelphia, Lionel L. Jacobs and Clyde G. Morrill, respectively chairman and executive secretary-treasurer of the Conference.

At the annual meeting preceding the dinner, all officers and directors were re-elected for another year. One new director, Gordon Duke of Washington, was added. Officers, in addition to Jacobs and Morrill, are Harvey W. Lewis, Port Washington, N. Y., vice-chairman, and Alebrt G. Schildwachter, New York, assistant treasurer. The Conference now has 91 members, principally large fueloil distributors from 14 Eastern states. The members approved for the ensuing year an operating budget (apart from the Harvard research work) of $16,000 for minimum expenses, with authorization to increase this by $11,000 if funds are made available for two other planned activities. Two new committees were authorized, one on legislation and hearings, particularly to prepare testimony that has been requested for the present Senate Oil Investigating Committee, headed by Sen. O'Mahoney, and the other committee to study and report on activities of competing fuel industries.

here's the answer

to clogged fuel systems

Every maintenance man knows that clogged pipe lines, strainers, filters and burners are major causes of boiler, engine and turbine troubles. They know too that these petroleum residues are responsible for most of their free service calls. That's why dealers everywhere are turning to **SILOO** Fuel Oil Tank Solvent as the safe, sure, simple and profitable answer to these everyday problems.

SILOO Fuel Oil Tank Solvent was produced in the laboratories of the Petroleum Solvents Corporation, a leading manufacturer of solvents for all types of petroleum residues. It dissolves sludge accumulation in tank and fuel systems, removes polymerized gums and acts as an inhibitor against electrolysis. It is non-explosive, non-corrosive, non-inflammable and non-toxic.

Use **SILOO** Fuel Oil Tank Solvent on every job. It will repay you with profitable sales and satisfied customers. Write today.

PETROLEUM SOLVENTS CORPORATION
TANK SOLVENTS DIVISION
331 Madison Avenue, New York 17, N. Y.

New England Schools For Servicemen Start

OILBURNER SERVICEMEN enrolled in the "Technicians' Training School for Oil Burner Mechanics" offered by Oil Heat Institute of New England in Worcester, Springfield, Hartford and Providence, have started their 13-week course which will end the week of September 24 with

THE HEART-BEAT of THE BURNER'S OIL FLOW

CAPACITY 30 GALLONS PER HOUR

SILENT AND LEAK-PROOF

VAPOR AND OIL TIGHT

SELF-PRIMING

PRECISION ACTION

EXTRA STURDY

TROUBLE-FREE

EXTRA SIMPLE

ALL PARTS INTERCHANGEABLE

PASSED BY UNDERWRITERS

INQUIRIES INVITED

DEALERS:

You'll Do an Amazing POST WAR BUSINESS WITH THIS OUTSTANDING

TEESDALE T.U.X. PUMP

Engineeringly Designed and Built for Precision Performance

TEESDALE MANUFACTURING CO.

Manufacturers of the Famous "TEESDALE" OIL PUMPS and ACCESSORIES

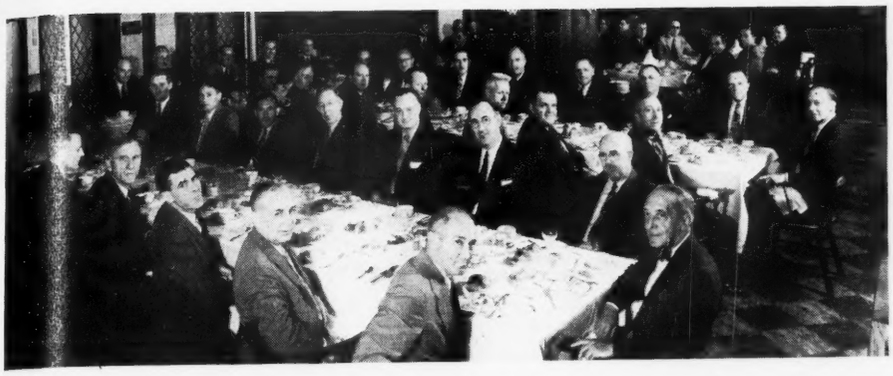
427 MARKET AVE., GRAND RAPIDS 3, MICHIGAN

WHEN peacetime business opens up again on the home front and you have heating equipment to sell . . . what kind of impression will you make—out front? Will it be just average or will you have a sales-producing General Motors Delco-Heat front to welcome customers?

Back up your own local reputation with a proven product and a famous name familiar to everyone—General Motors Delco-Heat. A franchise may still be available in your territory. Write for information.

COMPLETE LINE OF AUTOMATIC HEATING EQUIPMENT. Oil Burners, Oil and Gas-Fired Boilers, Conditionairs, Automatic Coal Stokers.

DELCO APPLIANCE DIVISION of GENERAL MOTORS CORPORATION • ROCHESTER, N.Y.



Joint Meeting of the Oil Heat and Oil Heat Dealer Division of the Electrical Association of Philadelphia.

home to the audience by Major Pannit's display of 30 worn tires from the battlefields. Mr. Horack outlined a 6-point conservation program to save truck tires.

Name OHI Committees

MEMBERSHIP OF TWO COMMITTEES, in addition to the Engineering Committee reported elsewhere in this department, has been announced by Oil Heat Institute.

The Constitutional Committee, headed by R. S. Bohn, Preferred Utilities, is composed of G. E. Hochstein, Heil Co.; R. G. Whipple, Harvey-Whipple; and G. B. Ferris, counsel.

The Membership Committee is composed of W. A. Kemp, Sunstrand, chairman; Alexis Doster, Torrington; J. E. Johnston, S. T. Johnson and A. E. Hess of OHI.

The slate for the Emergency and Postwar Planning Committee has not been completed.

Hess Is Speaker at Philadelphia Meeting

A. E. Hess, managing director, Oil-Heat Institute of America, Inc., New York, was guest speaker at a joint dinner meeting of the Oil Heat and Oil Heat Dealer Divisions of The Electrical Association of Philadelphia, June 11. A turnout of 82 members was present.

In his talk, "The Oil Heat Industry Looks Ahead," Mr. Hess outlined the thinking of the leaders of the industry and divulged interesting and valuable facts in connection with analysis and development of the future oil heat market.

Mr. Hess also reviewed for the members the current activities of the Oil-Heat Institute, together with the tentative plans of its several divisions.

At the conclusion of Mr. Hess' remarks, John A. Morrison, managing director, The Electrical Association, who acted as toastmaster, presented A. G. Cooper, District Fuel Oil Rationing Representative, OPA.

Mr. Cooper informally discussed with those present the forthcoming rationing program and responded to questions from a number of those present.

In concluding the meeting, brief remarks were made by L. L. Jacobs, Chairman, Oil Heat Division, and H. C. Thorpe, Chairman, Oil Heat Dealer Division.

WITH a bigger-than-ever demand for home heating oil predicted between 1946 and 1951, competition will be a lot stiffer, so . . .

BE READY WITH

Mobilheat

SOCONY-VACUUM HEATING OIL

Mobilheat

- **Member of America's Favorite Petroleum Product Family . . .**
- **Already One of America's Largest-Selling Fuel Oil Brands . . .**
- **Backed by Great Resources—Tremendous Petroleum Research and Marketing Experience!**

Surplus Property Disposal Simplified

TO SPEED the sale of surplus war goods, the Office of Surplus Property of the Department of Commerce has modified its sales procedures and given its eleven Regional Offices greater latitude in their operations.

Formerly it was required that property with a total acquisition cost of $1,000 be listed in the *Surplus Reporter*. Effective immediately such listing is necessary only in the case of items of a significant amount. In general, this means that property having a value of $5,000 or less and which can be absorbed in the regional market will not be advertised in the *Surplus Reporter* but will be offered by special listings as soon as it is ready for sale. Widespread publicity of offerings will still be the rule.

Regional Directors have been told that as a rule-of-thumb they should regard the highest bid offered as the market value of the property. In other words the high bid will generally be accepted, assuming that there has been proper circularization of the offering.

Regional offices of Surplus Property are located: Park Square Building, Boston; Empire State Building, New York; 499 Pennsylvania Ave., N. W., Washington; 704 Race St., Cincinnati; 209 So. LaSalle St., Chicago; 105 Pryor St., N. E., Atlanta; P. O. Box 1407, Ft. Worth; 2605 Walnut St., Kansas City; 1030 15th St., Denver; 30 Van Ness Ave., San Francisco; 2005 Fifth Ave., Seattle.

◈

Last Heating Season Was Close to Normal

SEASON DEGREE-DAYS: In spite of abnormal ups and downs in some months of the past heating season, the season as a whole ended in the principal oilheating sections of the country more nearly normal than has been true for several years. Grouping all of the New England cities regularly reported, the total season was 1% warmer than normal and 4% warmer than the previous season. The Middle Atlantic States averaged 1% warmer than normal and 3% warmer than 1943-44. Middle Western States were 1% warmer than normal and 3% warmer than the prior season. Only the Pacific Northwest showed important shifts, being 6% warmer than normal and 3% colder than 1943-44.

Such comparisons are useful only in checking overall supply related to consumption, since individual cities showed considerably wider departures from normal. The East had one abnormally cold strip, swinging from Portland through Hartford to Albany. The Midwest was decidedly spotty, with Toledo, Chicago, Milwaukee and St. Louis somewhat colder than normal and the other nine reporting cities warmer. Freak spot was Toledo, 5% colder than normal, while Detroit, just a mashie shot north, and Cleveland, a few miles east, were respectively 3% and 1% warmer than normal.

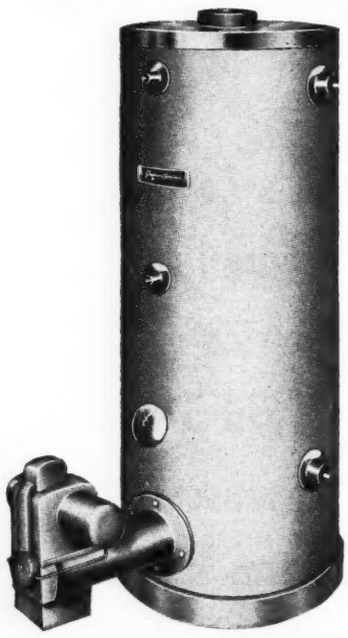
◈

Petro Issues Statement

PETROLEUM HEAT & POWER CO., Stamford, Conn., has issued a statement for the nine months ended March 31, showing a net profit after taxes of $216,699 on sales of $13,508,941. The balance sheet shows current assets of $4,960,428,

SHEPHARD "PERCOLATING" HOT WATER HEATERS STEAM AND HOT WATER BOILERS

FAMOUS FOR STURDY CONSTRUCTION, QUICK RECOVERY, LOW COST OPERATION AND STREAMLINE BEAUTY



The Government Has Purchased Thousands of Them

The percolating method engineered by Shephard, produces 20 gallons of water 90° rise, for one penny with fuel oil costing 7½c per gallon.

Distributors and wholesalers: some territory is still available, write today for descriptive literature, state territory you cover —it may be open.

Capacity water heaters: 65, 125, 175, 300, 500 GPH 90° rise. Capacity steam boilers: 300, 450, 650, 1150 sq. ft. radiation. Capacity hot water boilers: 450, 650, 1050, 1750 sq. ft. radiation. All models equipped with gun type burners with automatic controls.

All orders are filled sequentially—place your orders early for best deliveries.

SHEPHARD HEATER CO. 6624 SOUTH PARK AVE. CHICAGO 37, ILL.

LOCATION

Close to sources of raw materials . . .

Strategically situated on two great railroads and a major coast-to-coast highway . . .

Right in the heart of the nation's greater industrial region . . .

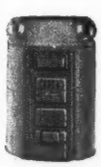
Luxaire's location assures quick delivery and prompt service when normal peace-time conditions prevail.

In this location, with advanced engineering and with constant research for better manufacturing methods, the heating trade can be assured that Luxaire will produce the outstanding line of warm air heating and air conditionng units.

Luxaire

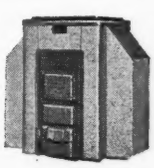
THE C. A. OLSEN MANUFACTURING CO. ELYRIA, OHIO

THE PRE-WAR LINE OF LUXAIRE WARM AIR HEATING AND AIR CONDITIONING UNITS FOR COAL, GAS, OIL

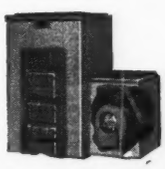


Series 600
Coal Fired Steel
Gravity Furnace

Series C
Coal Fired Cast
Gravity Furnace



Series 700
Coal Fired Steel
Gravity Furnace



Series AC-700
Gas Fired Steel
Air Conditioning
Unit

Series A
Gas Fired Steel
Air Conditioning
Unit

Series G
Coal Fired Steel
Gravity Unit

Series H
Gas Fired Steel
Utility Air
Conditioning Unit

Series 8000
Oil Fired Steel
Air Conditioning
Unit

fuel oil
& oil heat

FRANCHISE WITH A FUTURE

for Enterprise Dealers

Now is the time to consider a valuable Enterprise Dealership . . . the franchise with a bright postwar future. Long a leader in the combustion field, Enterprise will be ready with the world's most complete line of Oil and Gas Burners. As modern as tomorrow, no wartime models included, the Enterprise line will fulfill the highest expectations of a quality-conscious postwar market.

Enterprise Dealers are backed by a sound company with a 60 year record of faithful dependable service. Count on the complete Enterprise line of tried and proven combustion equipment, supported by consistent advertising and worldwide acceptance, to capture a generous share of profitable postwar sales.

METER MASTER

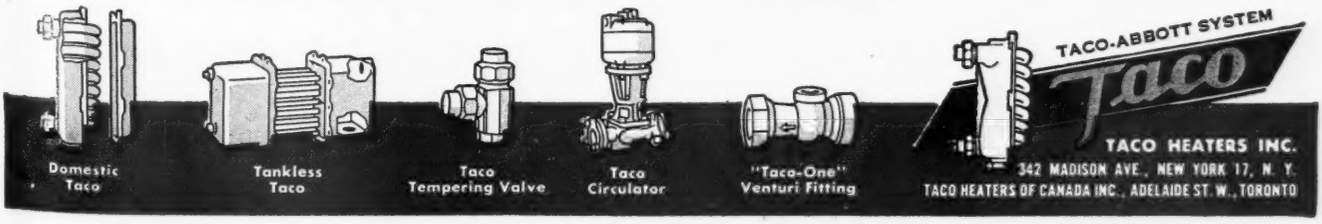
ENTERPRISE COMBUSTION EQUIPMENT

Division of ENTERPRISE ENGINE & FOUNDRY CO.

18th AND FLORIDA STS. Enterprise OIL & GAS BURNERS SAN FRANCISCO, CALIF.

It takes more than crossed fingers

After you specify or install a Taco Water Heater or a "Taco-One" Venturi Heating System, you don't have to cross your fingers for luck! You can count definitely on satisfaction for the home owner—legitimate profit for the contractor. You can depend on Taco engineering, knowledge, experience and responsibility.



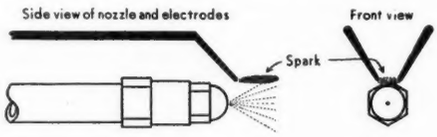
fueloil & oil heat

Reader's Problems

Q. During six years of use, a burner has had ignition failure half a dozen times every winter. Lumps of carbon are formed on the ends of the electrodes and finally short-circuit them. What's the cause and the remedy?

P.C.E., *Jacksonville, Fla.*

A. If the burner is well designed and on other installations the same model does not form carbon on the electrodes, your trouble probably lies in improper adjustment of the spark points or electrodes. With the gun tube assembly removed from the burner and arranged to spray oil into a pail, check the points to make doubly sure they are clear of the oil spray by at least 1/4". As you do this, remember that with the gun assembly in the burner the air from the blower causes the spark to extend forward more than half an inch. This causes the spark to reach the oil spray although the spark points are well out of the spray. A certain pressure burner we have in mind gives dependable ignition with the spark points flush



Make doubly sure the electrodes are clear of the oil spray

with the end of the nozzle, 3/16" apart, and as close to the nozzle as possible without the chance of the spark jumping to the nozzle.

Make sure the air handling parts in the gun tube are in their proper positions, for if they are out of place or adjusted poorly they may cause carbon to form on the electrodes. The trouble may be caused by air handling parts of poor design.

Check the atomizing pressure and make sure a defective nozzle is not to blame. An uncertain angle of spray from the nozzle, or a lopsided or uneven oil spray, may be causing the trouble.

Q. The nozzle of a certain burner has one or two plugged slots every time we look at it. We clean it, and a week later it's dirty again and the flame is white and skimpy. Cleaning the strainer in the fuel unit does not help. Can overheating of the nozzle cause this trouble, as a service man who works for me believes?

A.W.M., *Bay City, Mich.*

A. Nozzle overheating caused by hard-firing or use of an undersize firebox can form coke in a nozzle and plug the atomizing slots. The nozzles in certain burner models operate at higher temperatures than the nozzles in most burners, and nozzle trouble can be expected with hard-firing. If possible, use a reduced firing rate for a few weeks to find out if the nozzle then stays clean. Also, take the usual steps to eliminate nozzle plugging: 1. Install an effective oil line filter. 2.

They help PREVENT RADIO INTERFERENCE

Give your postwar oil burners this extra sales feature

G-E ignition transformers are remarkably effective in reducing radio interference. The Class E design (electrostatically balanced) has the midpoint of its high-voltage winding grounded, and a grounded electrostatic shield is incorporated between the high- and low-voltage windings.

Remember, too, that these transformers provide an ***unfailing*** high-voltage arc—even igniting oil in an ambient as low as minus 10 C when the line voltage is only 70 per cent of normal. They also deliver ample current to overcome such conditions as cold spark points, and oil film on these points. A wide choice of mounting features makes installation easy.

Add them to your list of design "musts"

Bulletins GEA-912D, GEA-2587, and GET-1004 will bring you complete design and product data to add to your file of ideas for postwar improvements. *General Electric Company, Schenectady 5, New York.*

GENERAL ELECTRIC

403-70-5205

IGNITION TRANSFORMERS

HOT NEWS FOR YOU!

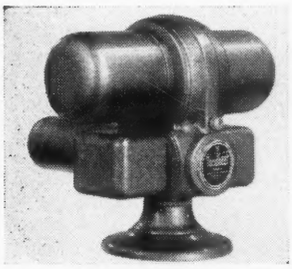
Toridheet Pressed Steel Burner NOW AVAILABLE

Model "S" Gun Type — Weighs 89 lbs. — half the weight of average burner. Weight saving means freight saving! Lower in price — lower cost of replacements

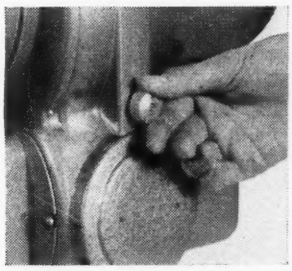
Years ahead in design, has a fine service record. Measures up to Toridheet standards of efficiency. Condensed story of its outstanding features given below will interest you. Yes indeed, it's available now.

MEMBER OBI OIL BURNER INSTITUTE

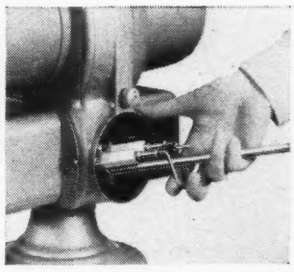
Beauty • Efficiency
Serviceability



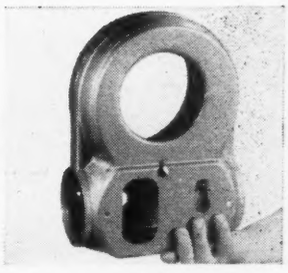
The Model S oil burner is symmetrical and attractive in design. Because of its streamlined construction there are no exposed parts . . . no gadgets. Needs little space. Stands close to heating plant when installed. Glossy, lacquer finish.



Airometer air control. The air for combustion is metered so precisely the atomized oil is thinned to a minimum for low cost operation. An adjustable scroll (patents pending) within the burner is the ingenious device which governs air volume.



Complete electrode assembly and tube to nozzle are removable through the back of burner. Note the square electrode porcelains. The electrodes are held rigidly in place to maintain hottest spark for the atomized oil at the nozzle.



Light in weight. Strong, precision-made, deep-drawn, ductile steel stamping. Assures close alignment between shafts of motor and fuel unit for quiet, trouble-free performance. Years ahead in design, construction and durability.

TORIDHEET DIVISION

CLEVELAND STEEL PRODUCTS CORP. • CLEVELAND 2, OHIO

Oil Burners • Air Conditioning Units • Oil-Burner Boilers
Coal and Gas Furnaces • Oil Water Heaters

Location: Bellevue, Pa. Architect: Lawrence Wolfe
Heating Contractor: Geo. F. Higgins Co.

HEAT AND HOT WATER FOR $2.45 PER MONTH PER APARTMENT!

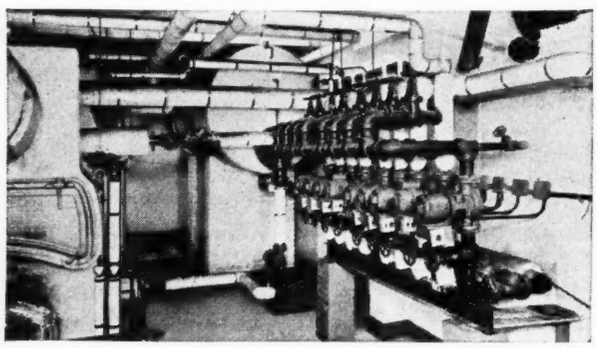
Builders today are specifying the B & G Monoflo Heating System for the common sense reason that it offers *more comfort for less money!*

The fuel consumption record of the modern 26 suite apartment shown above offers ample confirmation of Monoflo heating economy. This 3065 sq. ft. installation is stoker-fired, with temperature control effected by an outside type thermostat. Service water is heated the year around by a B & G Tankless Heater.

The accurate balancing of heat input and heat loss achieved by the Monoflo System means that *just enough* fuel is burned. The system never overheats in mild weather, yet has plenty of reserve when the thermometer hits bottom.

Easily zoned for sectional temperature control

The photo below of another installation shows how a B & G Monoflo System can be zoned to give each tenant individual control of his heating. The delivery of heat to each apartment is controlled by a B & G Booster Pump, operated by a room thermostat. An alternate method is to employ a single Booster to provide circulation, with a thermostat-operated B & G Motorized Valve installed in each zone circuit to control the flow of hot water.



THE BASIC EQUIPMENT

The B & G Monoflo System accomplishes its results with simple inexpensive equipment and is therefore easy to design and dependable in operation. The basic units are a B & G Booster, B & G Flo-Control Valve, B & G Monoflo Fittings and a B & G Water Heater of the size and type best suited for the job.

In addition, Monoflo *single main* piping cuts material and labor cost—makes a neater, space-saving installation.

SEND FOR B & G HANDBOOK

Full instructions for the design and installation of this Forced Hot Water Heating System is given in the B & G Handbook. This authoritative manual also covers the installation of service water heating systems. Your copy will be sent if you will write to us on your regular business stationery.

BELL & GOSSETT COMPANY
MORTON GROVE, ILLINOIS
Canadian Licensee: S. A. Armstrong Ltd., 115 Dupont St., Toronto

FORCED HOT WATER HEATING SYSTEMS

Draw an oil sample from the bottom of the storage tank and check it for dirt, sediment, and sludge; make sure the burner receives oil which is clean and fit for a pressure burner. 3. Install a new nozzle of capacity which gives the proper gph rate at the lowest pressure which gives good atomization.

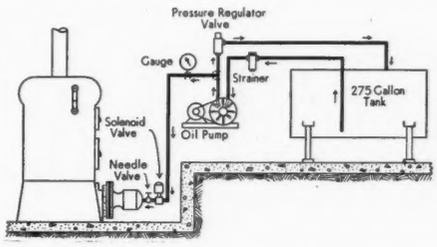
If the firing rate is exceptionally low, less than about 1.2 gph for example, your only way out of the trouble may be to switch the burner to oil which is lighter and cleaner.

◈

Q. A small automatic horizontal rotary cup burner obtains oil by gravity, through a constant level valve at the oil tank, and from an inside 275 gallon tank slightly above the burner. Because of the low head pressure given by the tank, the flow of oil to the burner is not steady and dependable when the owner shifts to an oil the burner can atomize well but which is thicker than domestic fueloil. We have on hand a small, slow-speed, belt-driven oil pump. How can this be installed to pump oil for the burner? How should the pump motor be controlled? What size pipe should be used for the suction and return lines? Can we still use the shut-off valve now on the burner?

W.S., *Cincinnati.*

A. The accompanying diagram shows how you can install the oil pump to obtain oil from a suction line and suction line strainer. At the output side of the pump is a tee. A line runs from the top of this to a pressure regulator valve suitable for maintaining from about five to 40 lbs. oil pressure. Oil which is pumped but not needed by the burner is by-passed back to the tank, through the return line, by this valve. Use the shut-off valve now on the burner.



Wire the oil pump motor to start and stop with the burner motor; it will receive current from the same control panel terminals that supply current to the burner motor.

To insure satisfactory pumping of the heaviest oil that can be used satisfactorily without preheating the fueloil, install a 1¼" suction line from the oil tank to the strainer. Use smaller pipe for the short line between the strainer and the pump. The return line will also be 1¼" size. The line from the tee shown in the drawing to the oilburner may be ¾" size.

When you first start the burner after installing the pump, keep the needle valve at the burner closed tight (with the burner motor and pump motor running) until you have adjusted the pressure regulator valve for 10 lbs. pressure. Open the needle valve to start firing, and then adjust it for the desired fire size.

◈

Q. If anthracite coal costs $13 a ton and No. 2 oil costs 7¢ a gallon, how many heat units are obtained in spending a cent for each? We want to compare fuel costs on the assumption that these two fuels will be used at the same efficiency, and later correct for higher efficiency with oil.

M.S.D., *Schenectady, N. Y.*

Permanent, Postwar

SALESMEN'S OPPORTUNITY

OPEN NOW

Four or five men with heating or combustion backgrounds are wanted at once by an equipment manufacturer for trade-contact marketing work in established territories. Selling ability and experience are essential. Knowledge of, and liking for, mechanics or engineering will be very helpful in this work.

The type of man most likely to be successful in this particular work could be a technical school graduate who has had a couple of years or more experience in selling heating equipment, power plant specialties, combustion control equipment, stokers or oil burners to wholesale distributors and, or, installing contractors. However, a college degree is not a first essential. A practical working knowledge and some experience in heating and power plant work coupled with sales ability is what the job requires.

The Company that wants these men is old and well established in this field. It is respected, progressive, well financed, and is currently planning further expansion and progress in its products and markets. These plans definitely include aggressive promotion and marketing to re-inforce the personal efforts of its representatives.

The line is already well known to the trade and the public and has an enviable performance record and users' satisfaction of many years standing. This line is now in process of further refinement and expansion. Its market is international and growing.

All the men now in this company's marketing division have read this advertisement and agree it is a fair and conservative outline of an opportunity. It is a competitive field, and the work will be varied and interesting, but not attractive to anyone looking for a "pushover".

Every response to this advertisement will receive executive consideration. No inquiries will be made until after an interview has provided a basis for such inquiry and the applicant has authorized it. Interviews can be arranged at practically any time and place, and will be requested on the basis of personal and business experience data in the responses received. It is requested that such data be complete and specific enough to provide an informative outline.

Box 502

FUEL OIL & OIL HEAT
232 Madison Avenue
New York 16, N. Y.

A. The anthracite will provide 20,769 Btu for each cent spent on it (on the basis of $13 per ton for coal which has 13,500 Btu per pound), while the No. 2 fueloil will provide 19,716 Btu for one cent. Good oilburners give higher efficiencies than home owners attain with hand-fired coal because of the precise control over the firing of the oil, the high combustion efficiencies attainable with oil, the automatic controls, and the saving of oil on mildly cold days when holding back a hand-fired coal boiler is difficult. Of course, some homes are heated to higher temperatures after oilburners are installed, and therefore, even with the oil burned at high efficiencies, the fueloil bills may equal or even exceed the previous coal bills.

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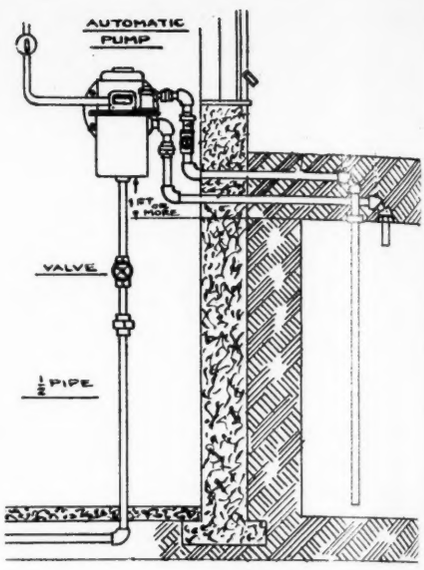
Editor:

I wish to call your attention to the article on page 60 of the May issue of Fueloil & Oil Heat entitled "Pressure Burner Trouble."

Enclosed there is a copy of our circular describing our Type TUX pump and also



a copy of our installation instructions. You will note that it is essential that our pump should be mounted in such a manner that the overflow will run by gravity from the pump back to the storage tank. Your design at the bottom of page 60, therefore, is in error.

C. H. Teesdale, *Grand Rapids, Mich.*

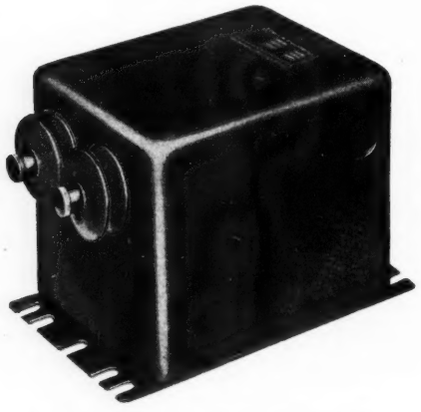
◈

Q. A burner has spells of breaking down, during which it stops on safety two or three times a week. When the safety is re-set, the burner runs properly. It may run dependably for two weeks to two months, then give the trouble again. What can be the cause of this in an installation which seems in perfect order every time a service man looks at it?

G.J.T., *Bayonne, N. J.*

A. Because you do not describe the installation or give many clues to the trouble, we can give you only general ideas on it together with some reasons for similar trouble on other installations.

First, try to find out if the control panel is to blame. A defective panel may shut down the burner when it should not. Your best way to check on this may be to remove the control panel now on the installation, and install for a six months trial a control panel which you know has no defects. If the smokepipe temperature is exceptionally low (below about 400° as checked with a stack thermometer), the entire trouble may lie in the smokepipe gases' failing to heat the sensitive element of the stack control during the first minute the burner operates after a long idle period. This can be checked, of



IMMEDIATE SHIPMENT

We can now make immediate shipment of Dongan Ignition Transformers for repair and replacement purposes. Write us concerning your requirements.

DONGAN ELECTRIC MFG. CO.
2981 Franklin **Detroit 7, Mich.**

The Dongan Line Since Nineteen-Nine

WRITE FOR LITERATURE

DONGAN TRANSFORMERS

Wait 'Til you see the

NEW CENTURY
Oil Heating Equipment

Engineered for

Top Efficiency . . . . Easy Profitable Selling

EVEN the most farsighted Century Dealers will be amazed at the new, improved oil heating equipment Century engineers are designing for tomorrow's post-war world. Wise, alert dealers who recognize quality heating equipment at profit-making prices, can depend on Century for easy profitable selling.

Century's new oil heating equipment will reflect superior knowledge born of wartime manufacturing experience. It means increased sales and stepped-up profits for business-wise dealers. Watch for exciting developments in Century's oil heating equipment!

ARMY E NAVY

CENTURY ENGINEERING CORP.

CEDAR RAPIDS, IOWA

OIL BURNERS • BOILER-BURNER UNITS • WARM AIR FURNACES
HUMIDIFIERS • WATER HEATERS • AIR CONDITIONING

course, by studying the control panel in action on a cold start. Installing the stack control properly on a flue clean-out door, instead of on the smokepipe, will make for speedier and more dependable operation if the installation has a low stack temperature.

If the control panel or its location are not causing the trouble, any of several dozen defects in the oilburner and the other parts of the installation may be causing it. Once you determine that faulty operation of the burner properly causes it to stop "on safety," you will have to diagnose and eliminate the trouble.

On one installation which behaved in the troublesome way you describe, cold air entered the smokepipe through a swinging disc type draft regulator located on the chimney side of, but too close to, the stack control panel. As a result, on certain windy days the burner stopped "on safety" needlessly and mysteriously. In another house, the voltage dropped and the burner ignition system failed to light the oil when the burner happened to start while other electrical devices were being used. The trouble was eliminated temporarily by setting together the spark points, which up to then were set ¼" apart. Better wiring was installed later. A defective motor, which started feebly at times but on the next try acted as if it had no defects, caused the trouble on another installation. Every so often, it was learned after a thorough check-up, on trying to start, this motor would turn over at about one-quarter of its proper speed and continue to run at slow speed until the safety control stopped the burner. For the next 50 or 60 starts, the motor would snap up to proper speed as it should. Then again, moisture in the basement made a commercial burner act erratic at times because it short-circuited the high tension circuit of the ignition system, but for several months each time a service man looked at the burner it started properly.

New FUEL OIL METERS
H-3C
H-3K
H-3Z
For fuel oil trucks, portable units, industrial burner fuel metering. For flows to 40 G. P. M. Working pressures to 125 lbs. P. S. I. Screwed connections 1-1/4" size. A small meter with high capacity.
Fuel oil meter illustrated with three different sets of accessories. Model H-3Z equipped with large numeral register, ticket printer, automatic predetermining set stop and air eliminator. Both strainer and back pressure valve are built into the meter. Body constructed of close grained cast iron heavily cadmium plated. Accurate, compact, simple to install. For information contact nearest representative today.
Built on the simple SMITH ROTARY PRINCIPLE—dependable, accurate and fast, the design that revolutionized the meter industry.
SMITH METER COMPANY
Subsidiary of A. O. Smith Corporation • Factory—5743 Smithway, Los Angeles 22, Calif.
Sales Offices: New York, Chicago, Houston, Los Angeles
Local Stocks at Convenient Points
Local Agents in All Principal Cities

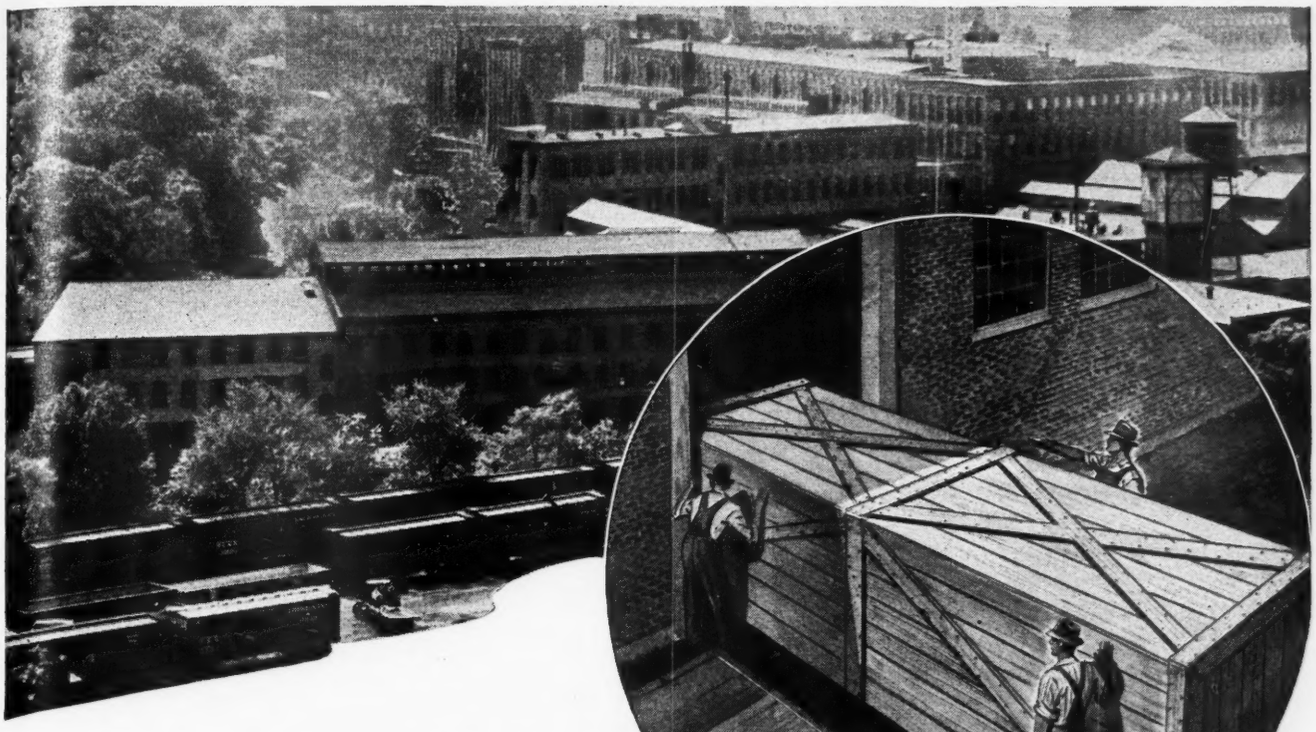
Would Bar Manufacturers From Retail Businesses

HOUSE BILL 135 has been introduced by Wright Patman (of Robinson-Patman fame), which would prevent a manufacturer from opening a branch or otherwise sell at retail where that manufacturer has dealers offering the same product to the public. It would make such competition by the manufacturer unfair competition and subject to Federal Trade Commission action.

Section 3 of the proposed bill provides: "It shall be an unfair method of competition in commerce * * * for a manufacturer to offer for sale and sell at retail to consumers any of the commodities produced or manufactured by such manufacturer, where the effect of so offering for sale and selling such commodities at retail to consumers may be substantially to lessen competition between such manufacturer and his customers (dealers) or tend to create a monopoly in such line of commerce or to injure, destroy or prevent competition by a customer (dealer) or customers (dealers) of such manufacturer."

R-S Names Distributor

R-S PRODUCTS CORP., Philadelphia, has appointed Fluid Controls Co., Philadelphia, as exclusive distributor for its valves in Eastern Pennsylvania and all of Delaware.



A Cyclotherm Comes in One Package

Cyclotherm Steam Generators are fully tested at the factory and arrive fully assembled ready to operate within a few hours after delivery.

Completely self-contained, Cyclotherm needs no special foundation or stack—a single vent to carry away the products of combustion is sufficient. When connected to oil, water, electricity and steam outlets your Cyclotherm unit is ready for work.

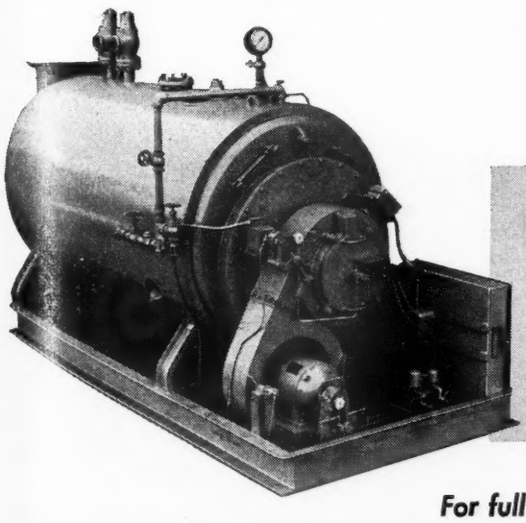
Cyclotherm units alone embody Cyclotherm's unique and patented principles:

CYCLOTHERM Steam Generators, in sizes ranging from 10 HP to 200 HP, with operating pressures from 15 psi to 200 psi.

CYCLOTHERM Hot Water Generators.

All units are fully automatic, oil or gas fired. Units with combination burners, firing either oil or gas, are also available.

Cyclotherm is emerging from the war with a veteran's reputation, for thousands of units have proved they can "take it" and deliver under all kinds of wartime service in the Army, Navy and Marine Corps.



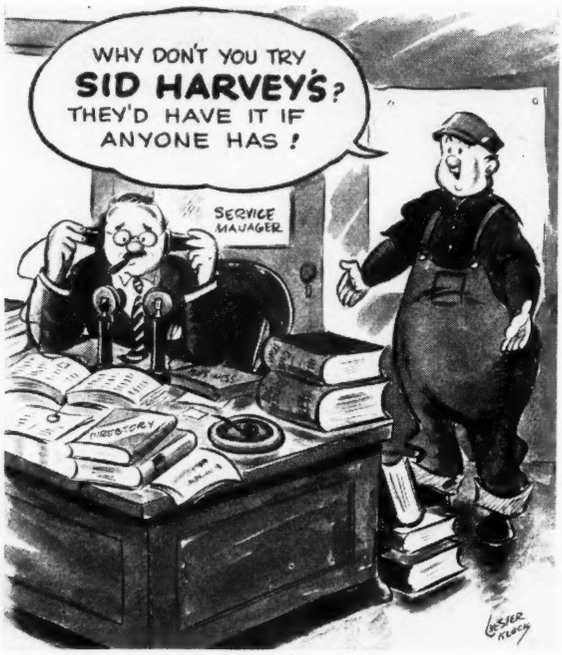
CYCLOTHERM
STEAM GENERATOR

For full information and prices write

CYCLOTHERM CORPORATION • 90 BROAD STREET, NEW YORK 4, N. Y.

fuel oil & oil heat

Again SID HARVEY'S Shows the Way——



New Low Quantity Prices in Effect on July 15th, 1945 on Guaranteed Rebuilding or Exchange.

Yes, Sid Harvey does it again!! With a new quantity discount for volume rebuilding beyond the single unit price. The new low prices cover the rebuilding of practically all popular makes of fuel units, regulating valves, fuel pumps, wall-mounted pumps, circulators and controls.

New facilities, larger quarters, increased efficiency and your patient support in the face of enumerable difficulties, enabled us to rebuild more than 25,000 defective units last year.

SID HARVEY IS NOW EQUIPPED TO SERVE YOU EVEN BETTER AT LOWER COST, if you will give us more units to do at one time. You save two ways as it costs but little more to ship five units than it does one and you get the five lot price. Likewise increased saving can be realized where you ship in lots of 10, and even greater in lots of 25 or more. You do not have to have all the same units in order to qualify for the lot price of each unit. Naturally we were not able to reduce prices on every item that we rebuild, as our costs are higher in some instances but we will allow such units to count in the lot to determine the quantity price bracket of the balance of the shipment.

Remember there will be no let-down on the quality of the work. Every unit will be *completely* rebuilt as before, and will carry exactly the same guarantee.

Send for Bulletin #58 for Complete Details and Prices.

SID HARVEY INC.
VALLEY STREAM, NEW YORK

P. S. to the 500 dealers from Maine to Virginia that visited us during the month of June — Thanks for Everything!

U. S. Department of Labor Fueloil Prices April

FIELD INVESTIGATORS for the Department of Labor monthly check prices of principal fuels in several cities in each section of the country. Getting retail quotations from various suppliers in each market, the prices are averaged and published. Those in the table that follow were taken Apr. 15 (cents per gallon):

	Range	No. 1	No. 2	No. 3
Boston	10.60	10.40	9.00	9.00
Bridgeport	10.30	..	9.00	9.00
Fall River	..	..	9.70	..
Manchester	11.10	..	9.70	..
New Haven	10.30	..	9.00	..
Portland, Me.	10.20	10.10	9.00	..
Providence	10.30	10.22	9.00	..
Baltimore	..	9.78	9.00	..
Buffalo	10.40	10.40	9.50	9.50
Newark	..	10.25	9.00	9.00
*New York	..	..	9.09	9.09
Philadelphia	..	9.94	8.93	8.91
Rochester	11.00	11.00	9.70	9.70
Washington	..	10.30	9.40	..
**Chicago	7.96	7.45	7.45	7.45
***Cleveland	..	8.55	..	8.03
***Detroit	..	8.45	7.93	7.42
**Des Moines	..	8.36	7.75	7.75
Milwaukee	8.50	8.50	8.00	8.00
Minneapolis	8.40	8.30	8.10	8.10
Omaha	..	8.10	7.60	7.60
St. Louis	8.47	7.83	7.55	7.55
St. Paul	8.30	..	8.10	8.10
***New Orleans	..	8.72	7.21	7.21
Norfolk	..	10.00	8.80	..
Richmond	..	10.30	9.00	..
**Denver	..	8.67	7.14	..
Portland, Ore.	..	7.30	6.30	..
***Seattle	..	7.78	6.75	..

*Price includes 1% sales tax.
**Price includes 2% sales tax.
***Price includes 3% sales tax.

Harvey School Draws 500

NEARLY 500 OILBURNER DEALERS and service men from all the 13 original states and the District of Columbia attended the Sid Harvey "Open House" and "Trouble Shooting" school, held during June, at the company's plant in Valley Stream, Long Island. This was a one day educational program consisting of a tour of inspection of facilities and stock of Sid Harvey, Inc., with various displays to help dealers to diagnose and correct pump and control troubles.

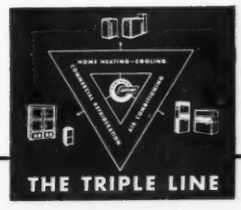
The Sid Harvey company specializes in service and maintenance parts for all makes of oil burners, and supplies service organizations all over the United States, including Alaska and Canada. However, the invitation to this school was confined to the Eastern states where dealers could readily attend.

CHRYSLER AIRTEMP

Merchandising— That Helps Dealers Sell

Chrysler Airtemp backs up the dealer with a complete merchandising program to help him sell. Continuous advertising campaigns keep the Airtemp name before the public. Display and promotional material, cooperative newspaper and publicity programs; a special service plan; a finance plan; customer relations ideas; factory sales and installation training courses help to complete the package. Sell the "Packaged" line backed by a "Packaged" Merchandising Program! Chrysler Airtemp pioneered "Packaged" Air Conditioners and the Combination Heating and Cooling System for the home. Chrysler Airtemp builds a complete line of smartly styled, soundly engineered heating equipment—warm air, hot water and steam, using all types of fuel, and priced to meet the needs of even modest budgets.

The Chrysler Airtemp Triple Line . . . Heating, Cooling, and Commercial Refrigeration . . . offers dealers an unusual opportunity for 12 months' profitable operation. Dealer agreements will be available for any single Chrysler Airtemp Line . . . any two lines . . . or for all three lines. • Airtemp Division, Chrysler Corporation, Dayton 1, Ohio.



THE 4 FUNDAMENTALS of CHRYSLER AIRTEMP DEALER OPERATIONS

1. Engineered Installation
2. Proper Display
3. Outside Selling
4. Customer Service

MEMBER I.C.I.

Buy More War Bonds! You'll enjoy "The Music of Morton Gould," Thursdays, CBS., 9 p. m., E.W.T.

HEATING • COOLING • REFRIGERATION

fuelfoil & oil heat

Four More Companies Awarded Army-Navy "E"

ALLEN MANUFACTURING CO., Nashville, Tenn., received the Army-Navy Production award at ceremonies held at the plant on the afternoon of June 26. The company has been in war production while developing a new line of oilburning water heaters and space heaters using the Lo Pilot distillate burner.

KEWANEE BOILER CORP., Kewanee, Ill., received notice of its fifth award of the Army-Navy "E" on May 26. The original award was made August 1, 1942, being the 54th such award made for excellence in war production.

KRESKY MANUFACTURING CO., Petaluma, Calif., has received notice of the renewal of the Army-Navy "E" award for production, according to C. A. Miller, president. The first award was made about six months ago. The company reports plans for a broad expansion of its activities in the oilheating field.

MINNEAPOLIS-HONEYWELL Regulator Company has been awarded the fifth Army-Navy "E" for excellence in war production. The first award in August 1942, was the first in the Chicago Ordnance district. Brown Instrument Co., Philadelphia, a division of M-H, has won four "E" awards.

What Is It?—*A gold-plated dealership plan for "Whoozis" burners.*

How Does It Work?—*It doesn't—yet. But it will someday (we hope).*

When?—*We don't know either.*

Who Can Get One?—*Anybody. Only hurry up—on account of the paper shortage, we could only print 50,000 copies.*

What will a "post war" Whoozis be like?—*Colossal—but then, let's not get technical.*

If the above offer doesn't look attractive to you—and you're the kind of dealer who likes to have his name associated with a good, dependable burner—drop us a line.

We'll get in touch with you when we can build oil-thrifty, service-free Herco Oil Burners again.

The only promise we can make to you now is—when Hercos are available, they will be, as they have always been, the best oil burners money can buy.

HERCO OIL BURNER CORPORATION **LANCASTER, PA.**

Service in Wartime Sales in Peacetime

HERCO
The Oil-Thrifty
OIL BURNER

OHI Adds Members

TWO NEW MEMBERS have been added to the rolls of Oil Heat Institute of America. Ace Engineering Co., Chicago, oilburner manufacturer, has joined the Manufacturer Division, and Sid Harvey, Inc., Valley Stream, N. Y., supply and repair house, has joined the Accessory Division.

Additional applications for membership are reported to be on hand for action of the board of directors at their next meeting at New York, July 24.

Wisconsin OHI Gets Sales and Service Data

SALES AND SERVICE DATA on the trade names of equipment that its members handle is being gathered by the Wisconsin Oil-Heat Association, Milwaukee, in order to give better service to users on "where to get it." The information collected from members will show the equipment trade names they handle, supply with oil, service, or for which they stock parts, according to Harold M. Mottram, executive secretary.

E. C. Alft has been designated as district manager for the York-Heat Division of York-Shipley, Inc., York, Pa., throughout the Middle-Western States, according to an announcement from the company. Following an extensive sales management career in the major household appliance field, Mr. Alft has been identified with the oilheating industry for the last fifteen years.

Ralph P. Henderson has been appointed manager of a new branch sales office which the Burnham Boiler Corp., Irvington, N. Y., has opened at Detroit, Mich. The new office will handle sales of Burnham boiler and radiators in the Southern Michigan Peninsula.

"SMOKE DOCTORS"

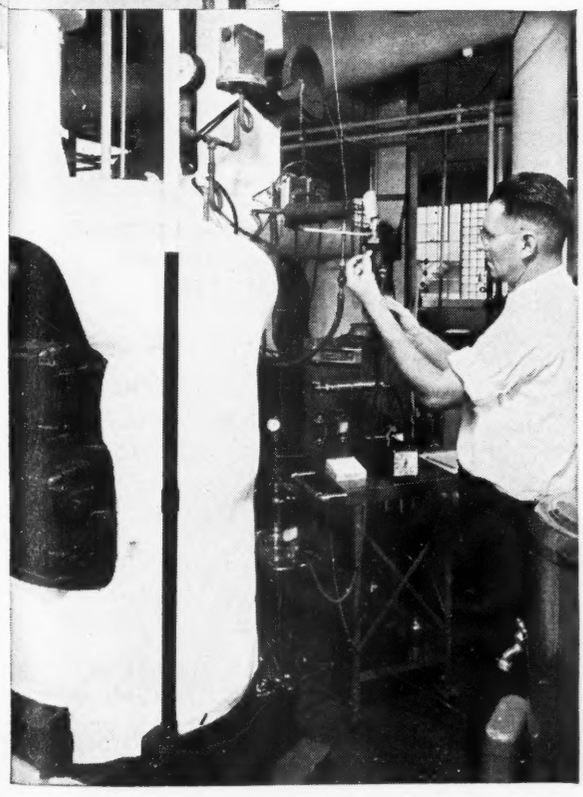
OPERATE AT AMERICA'S FOREMOST HEATING OIL CLINIC

ONE BRANCH of Shell Research is made up of "Smoke Doctors"—a group of scientists who fight smoke and soot as M.D.'s fight disease.

When the Smoke Doctors began their work 15 years ago, domestic heating oil was "something left over" when gasoline was refined. It was up to the burner manufacturer to make his burner perform on whatever "left-over" he got.

The Smoke Doctors took a different view: Their mission in life was to get heating oil—not Shell's alone, but also that of other refiners—made with the same care and precision as motor fuel . . . and to help burner manufacturers improve their equipment.

Their success in this missionary work has helped *your* customers get convenient, comfortable, and above all, *clean* heat. For further details, ask your local Shell Fuel Oil Representative.

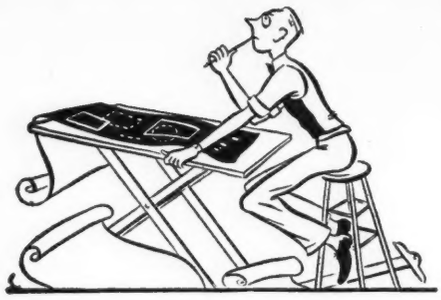


Using the Shell Smoke Meter to measure soot content

SHELL

SHELL OIL COMPANY
INCORPORATED

fueloil & oil heat



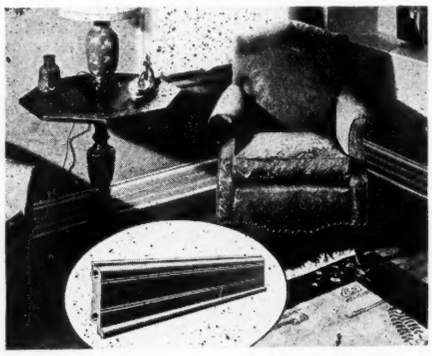
New Products

Baseboard Heat Panel Announced by Burnham

BASE-RAY HEAT PANEL has been announced by Burnham Boiler Corp., Irvington, N. Y., for domestic heating after the war. The units take the place of the conventional baseboard, and are formed to resemble a wooden baseboard. The illusion is heightened by the addition of standard wood moulding at the top and bottom of the panel.

The Burnham Base-Ray Heat Panel is a hollow cast iron unit, 7" high and 1¾" wide, connected with the usual heating boiler. Base-Ray can be used on all types of hot water jobs—forced circulation and gravity, one pipe and two pipe. It can also be used on two pipe steam and vapor installations.

Base-Ray Heat Panels are installed on the outside walls in place of a regular wood baseboard, and do not interfere with draperies and furniture arrangement. When painted to match the woodwork of the room, it is difficult to distinguish them from the regular baseboard.



Controlled tests with the new and improved method of heating demonstrate that it provides the most even floor-to-ceiling home temperature ever achieved. Even in sub-zero weather, the floor-to-ceiling differential is less than 3°.

Sections are joined by means of push-nipple construction with short tie bolts. Valves, ells and traps are connected to panels at bottom opposite ends—as with tube type radiators. These connections are concealed by a neat metal enclosure which is flush with the front and top of the panels.

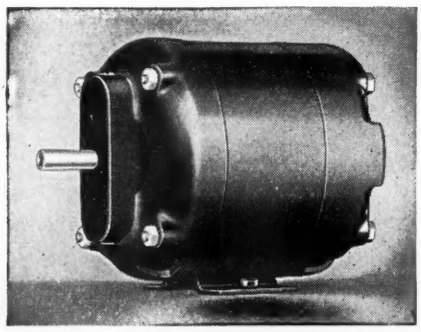
Base-Ray panels will be manufactured in 24" and 12" lengths and will be shipped assembled up to approximately 10 ft. When longer panels are required they will be shipped in two or more pieces to be assembled on the job.

Burnham has also developed a "Hy-Power" Base-Ray of the same dimensions. For increased output, this model is provided with an air inlet opening at the bottom, and an air outlet opening at the top. This unit will take care of jobs with greater heat losses.

Control Warns of Smoke

A PHOTOELECTRIC SYSTEM available from Photoswitch Inc., Cambridge, Mass., detects the presence of smoke in air conditioning ducts and immediately sounds alarms, turns off blowers, operates auto-

A SMALL MOTOR



for General Purpose Applications

Types—Split Phase, Capacitor or Shaded Pole.
Speeds—1100, 1700, 3400 RPM.
Power—1/80 to 1/20 HP, depending on speed.
Voltages—Up to 220 A.C.
Frequencies—60, 50 and 25 cycles.
Bases—Solid, resilient or flange.
Mountings—Horizontal, Sidewall, Ceiling or Vertical, with shaft up or down.
Efficiency—High for such small powers.

OHIO Reliable MOTORS

What is your problem?

THE OHIO ELECTRIC MFG. CO.

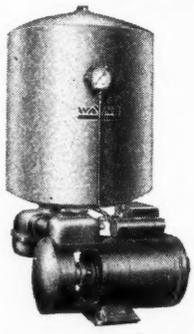
5913 Maurice Ave., Cleveland, Ohio

OHIO MOTORS

WAYNE HOME EQUIPMENT

DISTRIBUTOR – DEALER PARTNERSHIP PLAN

- COMPLETE LINE OF HOME EQUIPMENT
- BROAD ADVERTISING PROGRAM
- SELLING HELPS THAT *SELL!*



★

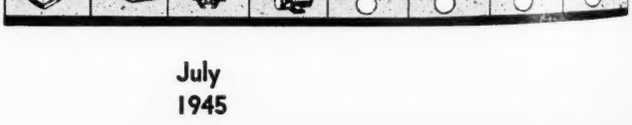
WAYNE AUTOMATIC WATER SYSTEMS *for* SHALLOW WELLS

New streamlined units. Higher efficiencies. Advanced engineering.

YOU MAKE GREATER PROFITS IN THE POPULAR PRICE RANGE!

WAYNE OIL BURNER COMPANY, Fort Wayne 4, Indiana

Another New Unit Will Be Featured Next Month—Watch for It.



matic dampers, or provides whatever other type of indication or control is required.

The system consists of Photoelectric Control Type A26X and Light Source Type L11RX. The latter may be mounted to project light over any distance from 10 to 25 feet to the "eye" of the photo-

electric unit. A sensitivity adjustment on the light source housing permits variation in the intensity of the light beam and may be set so that the photoelectric control will respond to smoke of a predetermined density. Type A26X will then remain inoperative at any other level of illumination, but will be actuated when smoke haze sufficiently reduces the amount of light reaching the phototube.

◈

Draft Korektor for Oilfired Water Heaters

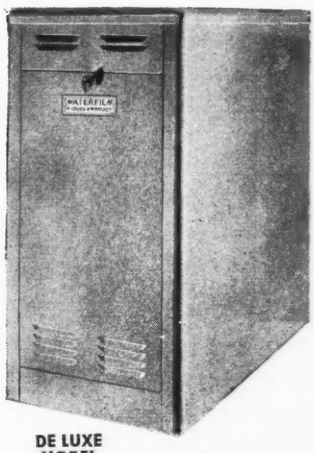
COLE-SULLIVAN Eng. Co., Minneapolis, announces a new addition to its Draft Korektor series of draft controls.

Designed primarily for water heaters, the new model, 906-B, has a special tee

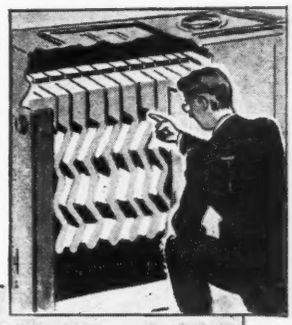
with adjustable opening into the top. This opening allows for convenient lighting and inspection of water heaters. Tee can be furnished for either 6" x 5" or 6" x 6".

Other details of construction include

KOVEN WATERFILM BOILERS *for* ECONOMICAL QUICK HEAT



DE LUXE MODEL



Illustrated is the heart of the WATERFILM BOILER—the efficient quick heating generator. The candle test proves this—the greatest heat is directed at surfaces above the combustion and at right angles to the heat travel.

Extensive plans are being made for remodeling and for building post-war homes and first on the list of essential items is a heating unit that can give economical heating comfort. The smartly jacketed KOVEN WATERFILM BOILER, the choice of leading architects and builders, combines both these necessary features. The patented construction of this fast steaming boiler incorporates all the newest scientific improvements... giving quick heat, even room temperature and a plentiful supply of domestic hot water. All WATERFILM boilers are made for automatic firing with oil, stoker or gas... in a variety of models suitable for large or small homes, apartment houses or industrial plants. For more detailed information write to:

WATERFILM BOILERS, Inc.

154 OGDEN AVENUE, JERSEY CITY 7, N. J.

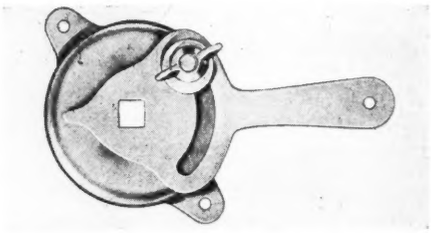
PLANTS: JERSEY CITY, N. J. • DOVER, N. J.

EVEN ROOM TEMPERATURE THROUGHOUT THE HOUSE

a large and unrestricted draft opening; close-fitting blade swinging on knife edge, non-clogging pivots; and outside draft adjustment.

Damper Quadrant for Homes

A NEW DAMPER QUADRANT, designed in a modern pattern for light industry and dwellings, has just been placed on the market by the Western Air Devices, Inc., Los Angeles, Calif. The device comes in



one-quarter and three-eighth inch sizes, and is attractively plated with rust-resisting cadmium. Features claimed for the product are ease of installation, dependability of operation and ruggedness of construction. Western Air Devices, Inc., announces that the damper quadrant is available now for immediate shipment.

Howell Announces New Domestic Burner Line

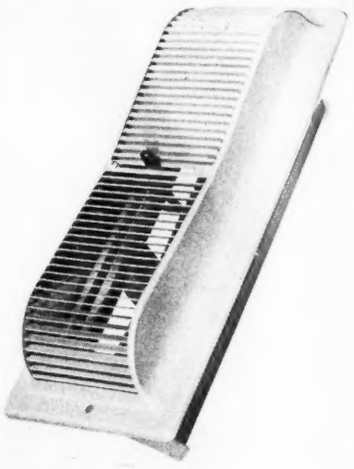
H. A. HOWELL Oil Burner Co., Dixon, Ill., has announced a new line of low capacity high pressure domestic oilburners which will be ready for the market in the near future. The company at present is making a Model DHP-5 with the maximum capacity of 5 gph. The DHP-2 will have a maximum capacity of 2 gph.

These burners are equipped with a new flame control firing head which is claimed to eliminate pulsation, make possible adjustment of flame shape, and make possible a high combustion efficiency over a wide range of firing rates. The equipment will be sold under the names H&O and Howell, and will be of standard design.

M-H Develops New Vol-U-Trol Air Register

MINNEAPOLIS-HONEYWELL has announced plans to market a new outlet for warm air heating and cooling systems which will be called the Vol-U-Trol register. It is manually operated to provide a wide range of easily adjustable diffusion settings, and control air volume at the register.

The new register is claimed to offer



many advantages not found in conventional types. The curved extension front, together with individually adjustable diffusion vanes, permits adjustment so that any shape of room can be blanketed with air regardless of register location. An operating lever through the center is used to change the amount of opening of the volume control blades. This volume control

SWELCO

Underwriter approved

FUEL OIL TANKS

ALL SIZES IN STOCK—275, 550, 1000, 1500
READY FOR IMMEDIATE SHIPMENT

Swelco tank features: Double dished style heads. Embossed and pierced for spud openings. Fitted for pipe legs.

STATE STREET WELDING CO.
670 STATE STREET, NEW HAVEN 6, CONN.

GUARDIAN FLEXIBLE COUPLINGS

For OIL BURNERS

Sleeve end of coupling is close sliding fit on blower wheel hub. Power is transmitted through four spline ribs of coupling fitting four spline grooves in blower wheel hub.

This exclusive direct drive coupling, with rubberized cushion gripped permanently, has no parts to get out of order, or to lubricate. Minimizes misalignment, free-end float, and backlash. Custom-made for specific job. Immediate attention. More than 300,000 tested and proved in oil burners during the last five years.

Regular Guardian Coupling

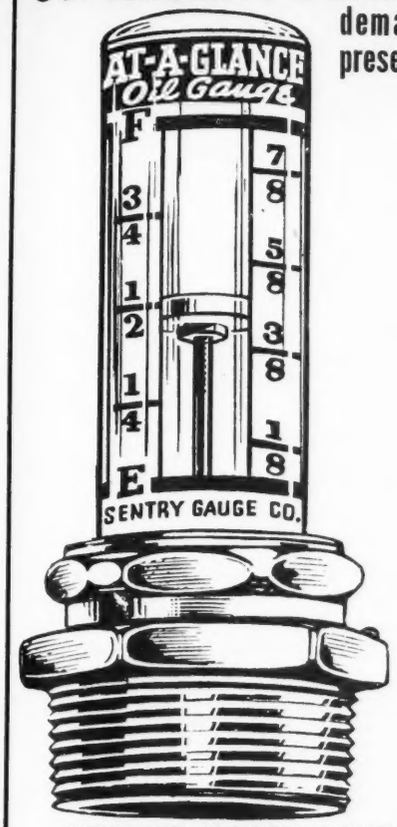
Manufacturers, Jobbers or Dealers—

GUARDIAN UTILITIES CO.
218 E. Michigan St., Michigan City, Ind.

WRITE or WIRE

SUPERIORITY is the reason for the great demand, even under present conditions for

AT-A-GLANCE GAUGES



(A large new factory building is now under construction as present facilities will not meet post-war demands.)

SOME POINTS OF SUPERIORITY:

1. Can be easily installed in partially filled tanks.
2. Listed as Standard by UNDERWRITERS LABORATORIES.
3. Made in sizes to fit any standard tank.
4. Easiest reading gauge on the market.
5. Simple sturdy construction.

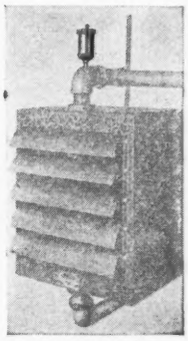
"AT-A-GLANCE" Gauges can be purchased from jobbers throughout the United States on an AA-3 Priority.

Write for complete details today.

KRUEGER SENTRY GAUGE COMPANY
109 NO. PEARL STREET — GREEN BAY, WISCONSIN

And Keep It Out With

AUTO-VENT AIR ELIMINATORS



Venting Hot Water Unit Heater

Circulation Troubles?

Don't fight air pockets or traps in hot or cold circulating lines! "Get that air out of there" *and keep it out* simply by installing the No. 7 Maid-O'-Mist Automatic Air Vent. This reliable air vent has a self-closing float-controlled valve and is designed especially for circulating pipe lines, convector radiators, unit heaters, cooling manifolds, tanks, diesel engines, or any other application where air pockets or traps retard the free circulation of liquids. For pressures up to 75 lbs. Bright brass finish.

APPROVED FOR NAVY, MARITIME COMMISSION AND ARMY USE

MAID-O'-MIST INC.
AUTOMATIC HUMIDIFIERS FOR ALL TYPES OF HEATING SYSTEMS
3221 NORTH PULASKI ROAD
CHICAGO 41 — ILLINOIS

NOW . . . Western manufacturing and distribution facilities for Balloffet Nozzles by

DELAVAN ENGINEERING CO.
3009 Sixth Ave. - Des Moines 14, Iowa

BALLOFFET DIES AND NOZZLE CO., INC.
6825 ADAMS STREET — GUTTENBERG N J

Homeowners Are Warned of FuelOilChange

Grade Will Be Heavier, Necessitating Adjustment of Furnace and Burner

Next winter's home heating oil probably will be of a slightly heavier grade than was available last winter, Ralph K. Davies, deputy petroleum administrator, reported yesterday in an appeal to consumers to get their oil burners in peak-performance condition

For PEAK PERFORMANCE *USE*

KLEEN-FLO

Helps Clear

DIRTY OIL FIRES
SMOKY CHIMNEYS
CARBON DEPOSITS

SOLVE today's oil burning problems with KLEEN-FLO. Reduce service calls — avoid extra adjustment and cleaning jobs. KLEEN-FLO helps preserve equipment and increase oil-burner efficiency — improves combustion, overcomes water and sludge. One quart conditions 500 gallons of oil — simply add through oil fill line. Write today for the profit-making facts.

COMBUSTION UTILITIES CORP.
1451 Broadway, New York 18, N. Y.

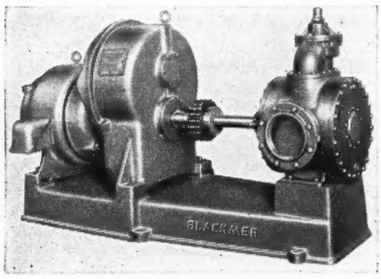
Los Angeles office:
Suite 1119—742 South Hill Street

at the register is said to eliminate the need for balancing dampers in the ducts.

◈

Steam-Jacketed Rotary Pump Unit by Blackmer

A STEAM-JACKETED ROTARY pumping unit of considerably improved design has been



put into production by the Blackmer Pump Co., Grand Rapids, Mich., designed to handle sludge and other viscous liquids. It has a capacity of 500 GPM at 150 psi pressure and is powered by a 75 HP gear-head motor with a speed of 155 RPM on the drive shaft. The pump construction is iron, bronze-fitted and the entire unit is mounted on a cast-iron base. The steam jackets are located on both heads.

Pipe Joint Compound Now In Stick Form

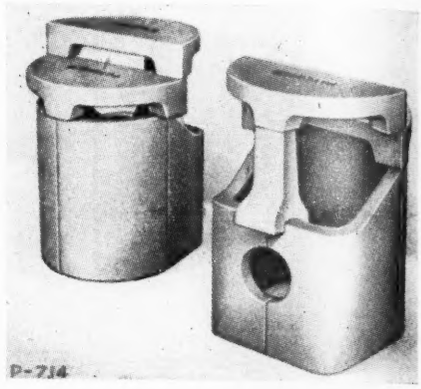
PIPETITE-STIK, a pipe joint compound in handy, clean, easy-to-use stick form, has been announced by Lake Chemical Co., Chicago. All that is required is to rub three or four strokes across the pipe threads, according to the manufacturer, and the lead-free compound spreads and fills threads when turned. The stick is encased in a cardboard holder.

Claims made for the compound include: Unaffected by air, water, steam, acid, gas, or brine; lubricates and seals threads; prevents rusting; withstands vibration; and joints can easily be taken apart.

◈

Nairoil Chamber Has Fuel-Saving Hood

BETTER COMBUSTION for pressure type oilburners is claimed by the use of the improved Nairoil Multiple Hood Combustion Chamber, marketed by National Airoil Burner Co., Philadelphia. The precast sectional firebox is designed to receive one or more hoods which will partially enclose the chamber at the top, reflecting heat back into the flame. It also is claimed that the hoods direct the burned gases against the sides of the boiler or furnace and aid heat absorption.



Other claims for the chamber and hoods include the elimination of soot, reduction of stack temperature, reduction of tendency to pulsate, and the ability to reduce excess air by as much as 30%.

◈

George S. Garrard has been named chief engineer of Briggs Clarifier Co., Washington, manufacturers of filters.

MONARCH BURNER

Accessories

NOZZLES: Production is at the highest rate in our history, but quantity orders, even with AA-1 ratings, must be placed well in advance of required delivery dates. *Emergency orders for one or two nozzles are being shipped immediately regardless of how low a priority is applied.*

AIR CONES & STABILIZERS: Quantity orders can only be accepted with AA-1 ratings as castings are unobtainable on lower priorities.

REGULATING VALVES & STRAINERS: Immediate shipment of a few models of piston and double diaphragm valves and suction line strainers.

Write for New Catalog D

MONARCH MFG. WORKS, INC.

E. WESTMORELAND & SALMON STS., PHILADELPHIA 34, PA.

COUPLINGS are needed right NOW

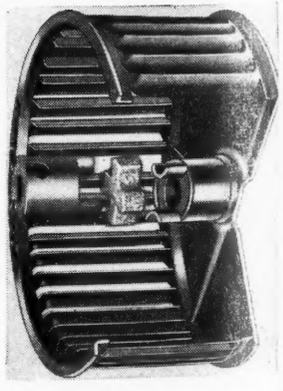
for your overhauling, or new installations of Oil Burners, Air Conditioning, Fans, Pumps, etc.

IMMEDIATE DELIVERY—ANY QUANTITY

L-R NON-LUBRICATED

(Below): Blower Wheel Mfrs. supply wheels with L-R Coupling jaws integral with hub.

Type UX Double-flex Type A Uniflex also furnished. All sizes.



Correct misalignment. Insure full uniform *quiet* power flow. Wire or write for prices.

LOVEJOY Flexible Coupling Co.

5012 W. LAKE STREET
CHICAGO 44, ILLINOIS

LONG LIFE

FOR SMALL BLOWER REQUIREMENTS

Redmond

MICROMOTOR BLOWER UNITS

HERE is a good little blower—and it has a motor that will keep it running smoothly for thousands of hours on continuous duty. Its excellent reputation for long life is backed up by years of engineering experience in working out a wide variety of applications. Redmond Micromotor Blower Units are built in single and dual types for Alternating Current operation with delivery from 40 to 120 cubic feet per minute. D.C. types are also available. *Write us today for complete information.*

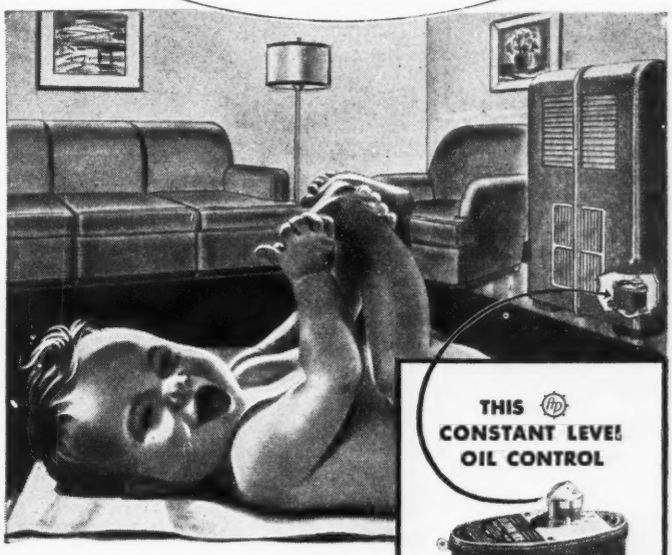
Redmond COMPANY, INC.

OWOSSO, MICHIGAN

Composite view of Redmond facilities

AC and DC MICROMOTORS • DYNAMOTORS • SPEED CONTROLLERS • BLOWERS

Safely Uniform Warmth and Comfort



THIS A-P CONSTANT LEVEL OIL CONTROL

is standard equipment on most good oil-burning heaters now . . .

Just add the A-P ELECTRIC AUTO HEAT CONVERSION TOP to the A-P Control now on your heater.

Then install this A-P Thermostat on the wall, and you will have COMPLETELY AUTOMATIC HEAT CONTROL—always uniform and dependable.

● For Homes where the Space Heater is Equipped with A-P Thermostatic Temperature Control . . .

WIN the gratitude of your oil-burning Space Heater customers by helping them to stretch their fuel allotment—prevent fuel waste—and still enjoy uniformly warm homes in early spring. The A-P Thermostatic Temperature Control for Oil-Burning Space Heaters using A-P Model 240 DR or UR Manual Controls is the equipment that will insure this comfort and fuel-saving economy.

TEMPERATURE CONTROL like this soon returns much more than its original cost—in fuel savings and uniform heating comfort. Feature it NOW for sales and profit!

AUTOMATIC PRODUCTS COMPANY

2458 North 32nd Street Milwaukee 10, Wisconsin

DEPENDABLE *Oil Controls*

fuel oil & oil heat

Fueloil Spec. Chart Shows Heat Content

CERTAIN PHYSICAL CHARACTERISTICS of fueloils from 8° to 46° API gravity are shown on a new chart which Griffith-Consumers, Washington, D. C., has distributed to its customers. Changing specifications—particularly in gravity—of present day oil makes the chart unusually interesting. Industrial consumers were presented with framed copies which can be hung at any convenient place in the boiler room.

GRAVITY, WEIGHT and HEATING VALUE of FUEL OILS

This table is based on data taken from National Bureau of Standards Miscellaneous Publication No. 97 and Circular C-410.

A. P. I. GRAVITY AT 60° F.	SPECIFIC GRAVITY AT 60° F.	POUNDS PER U. S. GALLON	B. t. u.'s PER POUND	B. t. u.'s PER GALLON
8	1.0143	8.448	18,450	155,200
9	1.0071	8.388	18,500	155,900
10	1.0000	8.328	18,560	154,600
11	.9930	8.270	18,610	153,900
12	.9861	8.212	18,670	153,300
13	.9792	8.155	18,710	152,600
14	.9725	8.099	18,770	152,000
15	.9659	8.044	18,810	151,300
16	.9593	7.989	18,860	150,700
17	.9529	7.935	18,900	150,000
18	.9465	7.882	18,960	149,400
19	.9402	7.830	19,000	148,800
20	.9340	7.778	19,040	148,100
21	.9279	7.727	19,090	147,500
22	.9218	7.676	19,130	146,800
23	.9159	7.627	19,170	146,200
24	.9100	7.578	19,210	145,600
25	.9042	7.529	19,260	145,000
26	.8984	7.481	19,290	144,300
27	.8927	7.434	19,330	143,700
28	.8871	7.387	19,370	143,100
29	.8816	7.341	19,410	142,500
30	.8762	7.296	19,440	141,800
31	.8708	7.251	19,470	141,200
32	.8654	7.206	19,510	140,600
33	.8602	7.163	19,550	140,000
34	.8550	7.119	19,580	139,400
35	.8498	7.076	19,620	138,800
36	.8448	7.034	19,650	138,200
37	.8398	6.993	19,680	137,600
38	.8348	6.951	19,710	137,000
39	.8299	6.910	19,740	136,400
40	.8251	6.870	19,770	135,800
41	.8203	6.830	19,800	135,200
42	.8155	6.790	19,840	134,700
43	.8109	6.752	19,860	134,100
44	.8063	6.713	19,890	133,500
45	.8017	6.675	19,910	132,900
46	.7972	6.637	19,950	132,400

The B.t.u. values given in this table are for oils containing no water, sulphur, or ash. B.t.u. values are reduced at the rate of approximately one per cent for each per cent of water and ash contained in the oil and approximately ¾ of one per cent for each per cent of sulphur.

The weight per gallon of oil is the weight of 231 cubic inches of oil at 60° F. when weighed in air of 50 per cent humidity.

The weight of one gallon of pure water at 60° F., without correction for buoyancy of air is 8.32828 pounds. The true weight of one gallon of water is 8.3372 pounds.

GRIFFITH-CONSUMERS
1413 New York Avenue, N. W. Washington, D. C.

Additional copies of this chart will be supplied upon request.

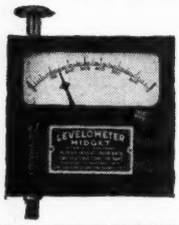
Opposite the various API gravity designations are shown the specific gravity of the oil, the pounds per gallon, Btu per pound of oil, and Btu per gallon. Some scientific tables may not agree in every detail with the figures shown in the Griffith-Consumers chart, since figures on weights in a vacuum will be slightly greater than when the fueloil is weighed in air. Figures in the chart have been corrected to show the weight of the oil when weighed in air of 50% relative humidity. The figures also represent fueloil containing no ash, water or sulphur. Btu values are reduced about 1% for each per cent of water or ash in the oil, and are reduced by about 0.75% for each per cent of sulphur.

Eastern No. 2 oil prewar, designed to work well in the so-called critical burners as well as the pressure atomizers, used to run 33° to 35° gravity. This oil weighed slightly more than seven pounds per gallon, and contained about 139,000 Btu per gallon. Cracked distillates now are running heavier, about 27°-28° gravity, weigh nearly 7½ pounds per gallon, but they contain about 143,500 Btu per gallon. Gravity is determined by floating a hydrometer in a sample.

WITH OIL CONSERVATION MORE VITAL THAN EVER, Its Accurate Check-Up IS IMPORTANT—

INSTALL LEVELOMETER Tank Gauges

"THEY'RE ALWAYS DEPENDABLE"



Midget LEVELOMETER
Lowest priced Remote Reading Gauge Built

Small Model LEVELOMETER
6"x6" case

Large Model LEVELOMETER
12"x12" case

A LEVELOMETER gauge on an oil tank installation eliminates guesswork—it insures accurate readings at all times.

Convenient, remote reading:—LEVELOMETER dial may be located at any reasonable point from tank and—large graduations and numerals make it easy to read.

LEVELOMETER tank gauges, approved by Underwriters' Laboratories, operate on an exclusive adaptation of the hydrostatic principle. No liquid is used in indicator to be affected by temperature changes, to evaporate, stain glass or to be blown out due to excessive pumping.

Get complete details regarding LEVELOMETER tank gauges—the Remote Reading gauges that insure accurate—trouble free check-up.

THE LIQUIDOMETER CORP.
36-19 SKILLMAN AVE., LONG ISLAND CITY, N.Y.

PETRO

REG. U. S. PAT. OFF.

DOMESTIC AND INDUSTRIAL OIL BURNING EQUIPMENT

DOMESTIC—Pressure Atomizing-Models:

Residential "Conversion"—4 models, 1 to 6 g.p.h.
Commercial "Conversion"—3 models, 6 to 18 g.p.h.
Flange Mounting Special Models for popular boilers and furnaces.
Complete boiler—or furnace burner units.
Direct fired water heaters.

INDUSTRIAL—Rotary Cup Type-Burners:

8 sizes for #5 oil, 7 for preheated #6 oil with Petro "Thermal Viscosity" system, for manual, semi-, or full automatic operation to 145 g.p.h.

PETROLEUM HEAT & POWER COMPANY

Makers of good oil burners since 1903

STAMFORD **CONNECTICUT**

Get FUEL-SAVING FACTS with this modern COMBUSTION TEST SET

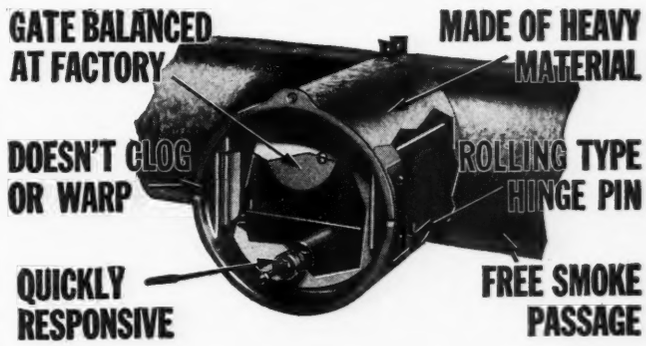
Cooperate with our government's National Fuel Efficiency Program and build your reputation for expert, fuel-saving service . . . by using these practical instruments to make efficiency tests of heating plants.

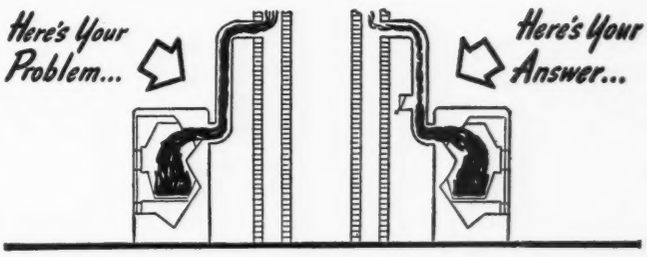
The easy-to-use FYRITE quickly indicates CO^2 in the flue gas, thus showing whether the fuel receives the proper amount of air. The Stack Thermometer test shows how well the furnace absorbs the heat of fuel burned. The unique FIRE Efficiency FINDER correlates CO^2 and stack temperature readings to show at a glance preventable chimney losses. The handy dry-type DRAFTRITE gauge is indispensable for properly adjusting the draft.

For prices, and complete particulars about the Fyrite Combustion Set, write for Folder 4401.

HEATING SERVICE DIVISION
BACHARACH INDUSTRIAL INSTRUMENT CO.
7000 BENNETT STREET · PITTSBURGH 8, PA.

● **Fuel savings range up to 25%, heat is more even, more steady — with a FIELD DRAFT CONTROL on the job. But be sure it's a FIELD you install. For the most accurate, most durable, most dependable draft control made today is the FIELD DRAFT CONTROL. It is used as a standard of comparison with manufacturers, dealers and consumers. Write us today for full information.**





● **Excessive chimney drafts (found in 9 plants out of 10) draw valuable heat up the chimney. But the FIELD DRAFT CONTROL holds these drafts *at all times* to a minimum, thereby saving critical fuel and increasing heating plant efficiency.**

field

CONTROL DIVISION OF H. D. CONKEY & CO.
MENDOTA, ILL.

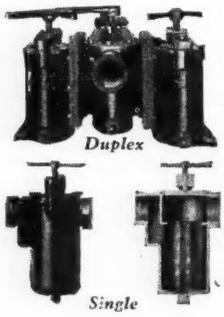
KRAISSL

FILTERS
STRAINERS
PUMPS

Keep Fuel Oil Lines Open and Active

Year-in, year-out performance proves the skill of KRAISSL engineering design and the honesty of KRAISSL manufacture.

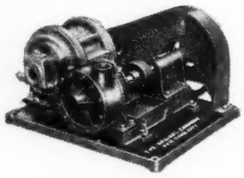
Class 72 Strainers and Filters



Single and Duplex types for suction or discharge service — any practical degree of filtration in units designed for low pressures as well as up to 500 lbs. hydrostatic test—easily removable filter basket insures quick cleaning.

Class 60 Heavy Oil Pumps

Standard equipment wherever independent pump and motor sets or booster pumps for pump-type burners are required.



Submit your fuel-line problems to KRAISSL engineers—literature and prices on request.

KRAISSL **THE KRAISSL COMPANY**
HACKENSACK, N. J.

DEGREE DAY TABLES

ONE MONTH ONLY					SEASON TO DATE (Sept. 1 to May 31)			
Normal	May 1944	May 1945	Percent Change*		Normal	1944	1945	Percent Change*
221	112	360	+ 63.2	Albany	6587	7122	6871	+ 4.3
32	33	106	+231.4	Atlanta	2999	2880	3056	+ 1.9
99	25	135	+ 36.5	Baltimore	4509	4445	4296	— 5.0
248	121	313	+ 26.0	Boston	5853	5986	5703	— 2.6
351	130	447	+ 27.3	Buffalo	6805	6904	6675	— 3.4
259	136	352	+ 41.2	Chicago	6205	6381	6211	+ 0.1
132	58	196	+ 48.5	Cincinnati	4993	4927	4932	— 1.2
255	96	349	+ 36.9	Cleveland	6094	6126	6050	— 0.7
14	18	32	+128.4	Dallas	2378	2436	2232	— 6.1
271	226	253	— 6.7	Denver	5784	5815	5614	— 2.9
165	139	310	+ 87.5	Des Moines	6356	6406	6185	— 2.7
252	144	397	+ 57.2	Detroit	6502	6561	6295	— 3.2
263	175	445	+ 73.3	Grand Rapids	6655	6654	6474	— 2.7
216	86	292	+ 35.1	Hartford	6037	6284	6114	+ 1.3
409	359	431	+ 5.3	Helena	7600	7702	7777	+ 2.3
12	4	11	— 8.5	Houston	1333	1326	1163	—12.7
155	82	287	+ 85.0	Indianapolis	5459	5383	5407	— 1.0
106	114	211	+ 98.2	Kansas City	4971	5218	4727	— 5.2
104	98	110	+ 5.7	Los Angeles	1362	1408	1512	+11.0
92	59	171	+ 85.8	Louisville	4421	4315	4342	— 1.8
340	261	461	+ 35.5	Milwaukee	6955	7081	7026	+ 1.0
255	193	403	58.3	Minneapolis	7898	7648	7573	— 4.1
1	2	0	. . .	New Orleans	1208	1234	1072	—11.3
176	93	204	+ 15.9	New York	5270	5364	4962	— 5.8
152	148	266	+ 75.0	Omaha	6074	6384	5914	— 2.6
117	41	192	+ 64.4	Philadelphia	4732	4842	4844	+ 2.4
170	42	284	+ 66.8	Pittsburgh	5427	5435	5631	+ 3.8
375	310	480	+ 27.8	Portland, Me.	7128	7725	7475	+ 4.9
241	208	202	— 16.3	Portland, Ore.	4214	3958	4043	— 4.1
245	93	250	+ 2.1	Providence	5946	5783	5552	— 6.6
88	94	204	+132.0	St. Louis	4602	4717	4758	+ 3.8
233	213	202	— 13.3	Salt Lake City	5568	6118	5568	. . .
252	255	295	+ 17.0	San Francisco	2569	2454	3043	18.4
485	346	626	+ 29.1	Sault Ste. Marie	8901	8732	8759	— 1.6
304	262	205	— 32.6	Seattle	4560	4101	4244	— 6.9
226	131	394	+ 74.5	Toledo	6202	6611	6485	+ 4.6
104	15	149	+ 43.1	Washington	4582	4486	4257	— 7.1

*Compared with normal.

Manufacturers of Rexoil Conversion Burners, Boiler Units, Furnace Units and Direct-Fired Conditioners

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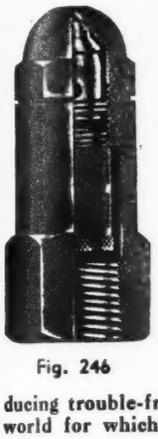

Fig. 246

Right now, "EDCO" production is bigger than it ever was in peacetime. Due to the ever increasing demand for "EDCO" Pumps, Pressure Regulating Valves, Pipe Line Strainers and Spray Nozzles by our Armed Forces, there is nowhere near enough left to meet the civilian demands — but they will be worth waiting for.

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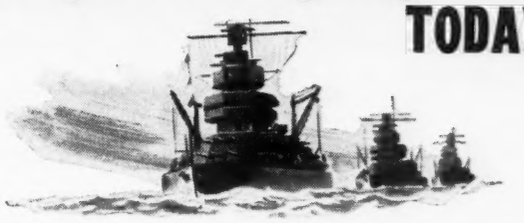

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Fuel-Saving Starts With CONTROL

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Cole DRAFT Governor

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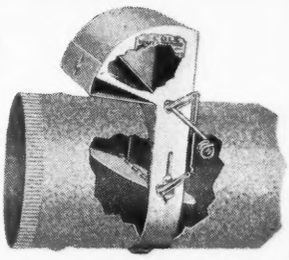

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WHEREVER you are, this message spells opportunity. Because Oil-O-Matic expansion is coast-to coast. Write in now. Tell us your experience, your personal ambitions. We want to hear from men who are available *right now* . . . men who will be available in 60 to 90 days . . . or men for whom a new connection is strictly postwar.

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SEND FOR LITERATURE AND PRICES

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Since 1887 Manufacturers of Heating Equipment

States Ease Limitations

(*Continued from page 41*)

mum weight from 40,000 to 45,000 pounds, while South Carolina's legislature increased lengths from 45 to 50 feet and weight from 40,000 pounds to 50,000.

Iowa's legislature enacted a bill following in the main wartime emergency limits by permanently permitting up to 18,000 pounds on one axle, truck heights of 12½ feet, and up to 35 feet length for a single vehicle. North Dakota has a new law increasing the length of truck combinations from 40 to 45 feet, fixing single vehicle length at 35 feet and adopting a weight formula under which at least 57,750 pounds will be permissible instead of the former fixed standard of 40,000 pounds maximum.

Minnesota's legislature enacted a bill which, besides setting up minimum-maximum standards, provides for issuance of certificates to exceed formula limits and to permit gross weights up to the actual maximum weight-carrying capacity of bridges and highways on any particular routes. The Texas legislature passed a bill increasing the truck load limit from 38,000 to 48,000 pounds.

Colorado has a new liberalizing law providing for a maximum length of 60 feet for combination rigs and a limit of 18,000 pounds gross weight per axle. Top weight of three-axled trucks is fixed at 46,000 pounds, while the limit for two-axled single trucks is 30,000. A new Wyoming law increases the length of combinations of full truck and trailer to 60 feet, permitting tractor-trailer rigs up to 50 feet and single truck length at 40 feet. This measure allows a weight up to 73,950 pounds in a full truck and trailer combination.

Enacted in Arizona was a measure permitting maximum vehicle height of 13½ feet, maximum single vehicle length of 40 feet, and an unchanged maximum of 65 feet for combinations. Included in the new law is a formula under which gross weight of vehicles and load may go as high as 75,000 pounds. Oregon's legislature extended for two years that state's war-time limits of 60-foot vehicle length and weight up to 71,250 pounds.

While their laws are not uniform, the 11 Western states—Washington, California, New Mexico, Arizona, Idaho, Wyoming, Utah, Montana, Nevada, Colorado and Oregon—have reached the point in highway barrier elimination where it is now possible to operate vehicle combinations of tractor truck and full trailer up to 60 feet in length and up to at least 68,000 gross weight of vehicle

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"Type H" Fuel Saver

Made in all sizes from 4" to 24" inclusive.
The frames of type "H" controls from 5" to 10" inclusive, are made of a new alloy, cast in our special molds, and the gates are made of galvanneal or black iron, cadmium plated.
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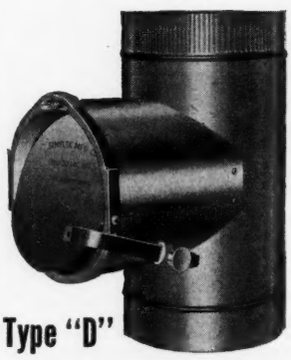
adjustable to breechings from 8" to 12" inclusive, which covers the range of most domestic heating plants.



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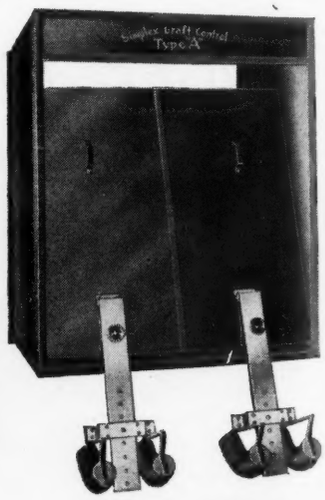

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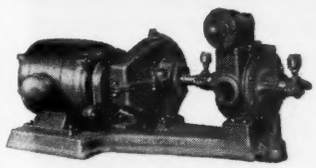

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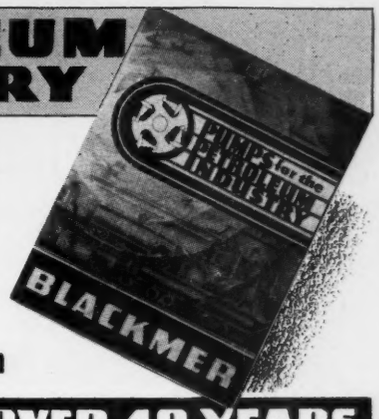

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and load in each of them.

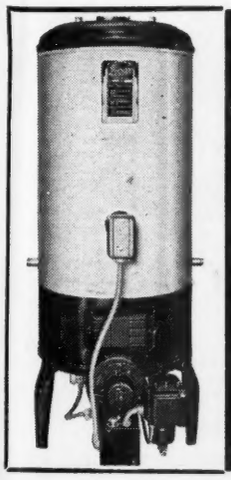
Besides liberalizing size and weight restrictions, state legislatures this year have acted in other ways to free the highways of artificial impediments. Maine and Arkansas joined the growing list of states with laws providing for truck registration reciprocity, while New Hampshire put its reciprocity arrangements on a permanent basis.

Colorado has a new law replacing its highway ports-of-entry with moving inspection stations. In at least one instance this year progress toward trade barrier elimination has come through administrative action, with West Virginia's State Road Commission defining primary highways in that state as "industrial" highways which may carry vehicles with 18,000-pound maximum axle loads, instead of the former 16,000-pound limit.

Trade barrier removal was progressing so slowly, however, that when war broke out it was necessary to go after the obstructions on an emergency basis. This left them lying temporarily dormant as a menacing time bomb likely to explode with the return of peace. While such a situation still holds in many instances, the current-year legislative record in the highway transportation field offers hopeful signs that state lawmakers will not permit a return to the barrier spiral.

◈

H. B. Van Cleve, president of Maritime Petroleum Corp., New York, was married, May 31, to Claudia Cantey at Williamsburg, Va.



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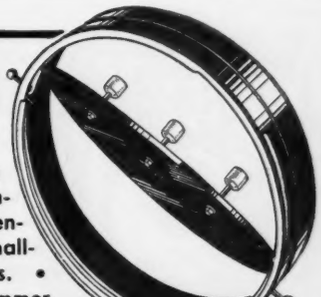

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HEATING SYSTEMS

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Last Month

CONSUMER DURABLE GOODS manufacturers are required by the Office of Price Administration to supply the agency with copies of their current catalogs and price lists on or before July 15, 1945, OPA has announced. Three copies should be filed with the manufacturer's OPA district office. The extra copies will be sent to regional and national offices for their files.

ORDER L-123 has been revoked freeing, except for any other orders that may limit the sales or distribution of the products, air filters, air washers, compressors, fractional horsepower motors, fans and blowers, heat exchangers, pumps and insulation blowing machines from restrictions on production and distribution.

FRACTIONAL HORSEPOWER MOTOR production may increase to 800,000 units a month by the fourth quarter this year, WPB has reported. WPB says there will be a continuing large military demand for these motors, and it is expected that the civilian demand for the next three to five years will be greater than the industry can meet. Order L-341 is being retained, and will require continuous inventory reporting by those who use more than 450 such motors per quarter.

RETENTION OF ORDER L-79 was recommended by the Plumbing and Heating Distributors Industry Advisory Committee "to maintain an even flow" of equipment. WPB has accepted the recommendation.

STOKER MANUFACTURERS Industry Advisory Committee told WPB that they expect that production of all classes of stokers in the third and fourth quarters this year would be about twice the production of the first and second quarters. First quarter production was 17,000 stokers and members estimated that the second quarter would total about 25,000; third quarter, 35,000; and fourth quarter 45,000, making the total for the year about 120,000.

WARM AIR DUCTS, pipes and fittings come under Simplified Practice Recommendation R207-45 which recently has been printed by the National Bureau of Standards. Fittings for both gravity and forced air heating and air conditioning systems are covered. Sketches show 91 types of fittings, various sizes of which are in the list. There are about 1,223 items in the list, which is estimated to cut inventory requirements about 40%.

THE U. S. FIFTH FLEET burned 630,000,000 gallons of fueloil in seven weeks of June and July, 1944. This was more than used by the whole Pacific fleet in 1943. More than 600,000,000 gallons of fueloil were required to get the amphibian forces to Okinawa for the invasion, or enough to have provided 208 gallons each to the country's 2½ million oilheated homes.

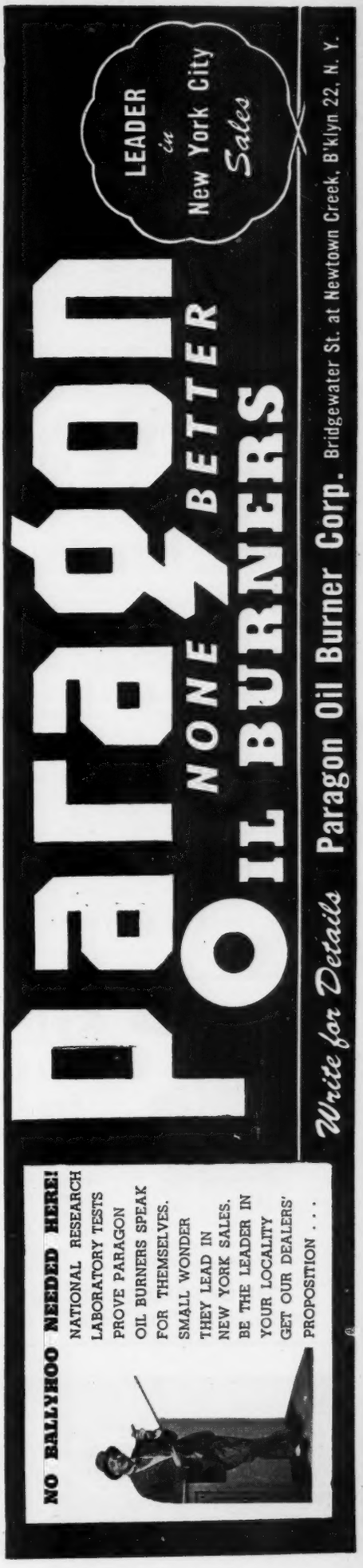
THE CANADIAN PERMIT SYSTEM under which domestic oilheating users have been making fuel purchases since 1942 was discontinued June 2, Hon. C. D. Howe, Minister of Munitions and Supply, announced. Oilheating equipment may also now be installed without a permit from the Oil Controller. While this may seem unfair, and undoubtedly is in view of U. S. continued restrictions, it should be recalled that there are few domestic oilburners operating in Canada, and the job of administering and policing the restrictions was excessive in view of the small savings accomplished.

REPAIRMEN using the ratings assigned by CMP Regulation 9-A or a service organization operating under Order P-126 may employ the ratings to get motors repaired, rewound or rebuilt if they are used in such household products as refrigerators, washers, oil burners, coal stokers, etc., the War Production Board ruled.

WPB has issued a list of 101 items that now are expected to be in short supply in the immediate future. The list includes such items as bellows assemblies, distillates and other petroleum products, fractional horsepower motors, and cast iron radiation.

PRODUCERS' COUNCIL, through Irving Clark, of the Residential Committee, estimates that a scarcity of various materials and equipment will hold down building and make maintenance and repair work account for about 40% of all construction undertaken in the next twelve months.

BRIGHT WORK, which has been prohibited on non-electric stoves and ranges, now is permitted by an amendment to Order L-23-c.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Oil Burners complete with 3 Minneapolis-Honeywell controls $92.50 ea.; Damper Control Sets, complete with motor, pulley chains and thermostat $12.00 ea.; Damper Control Package complete with Da-Nite thermostat $20.68 ea.; Complete oil fired automatic water heater burner units, capacity 180 gallons an hour $229.50 ea.; Model 107 Lau Blowers, Upper Discharge, less motor $12.00 ea.; Minneapolis-Honeywell RA117-A Relays $16.50 ea.; Minneapolis-Honeywell Limit Controls $4.50 ea.; Minneapolis-Honeywell Low and High Voltage thermostats $6.00 ea.; Electric Vacuum Cleaners, 1 horsepower complete with 11 attachments $89.50 ea.; Webster & Sundstrand single stage oil pumps $12.50 ea. We carry a complete line of Minneapolis-Honeywell, Mercoid, Penn and Perfex controls. Oil burners from 1 to 165 gallons per hour, available for immediate delivery, range from 2 to No. 6 oil. HASKO UTILITIES COMPANY, 119-121 E. 27th Street, New York City 16, N. Y.

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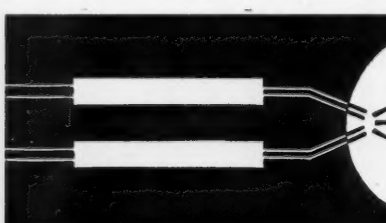

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